Teachers in day nurseries: observations of children's behaviour and the nature of talk by teachers and nursery nurses to children

Thesis

TEACHERS IN DAY NURSERIES: OBSERVATIONS OF CHILDREN'S BEHAVIOUR AND THE NATURE OF TALK BY TEACHERS AND NURSERY NURSES TO CHILDREN

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ABSTRACT

The introduction of teachers into local authority day nurseries has been recommended as a means of extending the educational opportunities open to the children attending such nurseries. An underlying assumption is that teachers are likely to be especially successful at providing compensatory experiences which will promote the child's language development.

The present research was carried out in council day nurseries with and without teachers. Two main aims were identified. One was to investigate whether nursery nurses and teachers differed in their speech to children, particularly in terms of cognitive content. The second was to compare children's customary levels of social and cognitive functioning - as expressed in their spontaneous behaviour in the nursery - in the two groups of nurseries.

Few differences were found in the behaviour of three-year-olds in each nursery group. The hypothesis that complex cognitive operations would be more often observed in the children from nurseries with teachers was not confirmed. Regarding staff speech to children, group size appeared to be a more influential factor than whether the adult was a teacher or nursery nurse. No support was found for the hypothesis that teachers would show a greater level of cognitive content in their speech to children than would nursery nurses.

CONTENTS

CHAPTER ONE: INTRODUCTION

Aims

Preschool services in Britain are generally distinguished by their relative emphasis on the functions of either day care or education. This split between nursey education and day care for under fives is evident in terms of differing forms of administration, policy priorities and underlying assumptions about 'the proper place for a child' (Ministry of Health, 1945; Tizard, J. et al, 1976). Local authority day care is not available for under fives in general; admission is restricted to those whose circumstances are considered exceptional in some way (Ministry of Health, 1968). The effect has been to concentrate a highly selected, disadvantaged population of children in a form of provision that has traditionally defined its role in terms of the promotion of physical welfare (Ferri et al, 1981; van der Eyken, 1984).

In their examination of special educational needs, the Warnock Report (1978) recommended that greater educational opportunities should be provided for children attending day nurseries and that wherever possible, nurseries should have a permanent teacher on their staff. Following the 1980 Education Act, local authorities were allowed to release teachers to work in day nurseries and this practice has now been adopted in some nurseries (van der Eyken, op cit).

The adults working in day nurseries have been predominantly nursery nurses with the NNEB qualification. The backgrounds of teachers and nursery nurses differ in a number of ways. First, the training and aims of these two groups of staff are somewhat different. Traditionally, nursery nurses tend to focus on welfare and social matters, whereas teachers, although acknowledging the importance of such issues, are more likely to emphasise educational aims and preparation for school (Clift et al, 1980; Tyler, 1980). Secondly, teachers enjoy higher status than nursery nurses as well as generally, better pay and conditions (ACC/AMA, 1977).

The present research focuses on local authority day nurseries with teachers. Two groups of day nurseries were studied: teachers were seconded onto the nursery staff in one of these groups, the other group had no teachers on the staff. Schemes aimed at co-ordinating preschool services have not often been studied systematically (cf Ferri et al, 1981). Evidence of co-operation and co-ordination between previously separate agencies has been interpreted as an indicator of success (e.g. DHSS, 1976; ACC/AMA, 1977) without examining what actually occurs within the agencies. Without this information, however, it is difficult to determine which factors may be influencing the ways in which staff in different centres operate. To do this requires systematic observation, in this case, of the behaviour of children and staff in the two groups of local authority day nurseries.

In their involvement with children, teachers and nursery nurses in the field of nursery education have been shown to be very similar regarding the amount of such interaction (Clift et al, 1980). Qualitative differences between the two groups of staff, particularly in the sphere of day care, have been less often researched. Such differences may be expressed in the adult's speech to children. The present study investigates whether nursery nurses and teachers, in local authority day nurseries, differ in their speech to children, particularly in terms of cognitive content. Audio-recordings of staff speech were made in order to address this question. Since teachers in some day nurseries work mainly with small groups of children (cf van der Eyken, 1984), each nursery nurse and teacher was recorded with both a small and a large group of children.

The extent to which the presence of a teacher in the nursery is associated with more complex cognitive behaviour in children was examined by means of structured observations. Johnson and Ershler (1982) point out that whilst the effects of preschool curricula on the cognitive development of children have been much researched, the impact of different preschool programmes on children's play has been investigated less thoroughly. Play behaviour and cognitive abilities are thought to be related, however, and there are a number of aspects of play connected with the child's developmental level, such as the use of materials, the degree to which different

activities are integrated into one game and so on (Lunzer, 1958; Tizard B. et al, 1976a). Such characteristics were employed in this study when observing children's behaviour.

The aims of the project were: (a) to compare the child-oriented speech of nursery teachers with that of nursery nurses; (b) to compare the play of children in the two groups of day nurseries. A number of contributory factors were considered when comparing the play of children in the two nursery groups. The nature of staff involvement, whether active or passive, has been shown to affect children's behaviour (e.g. Shores et al, 1976; Thompson, 1944). In addition to the presence or absence of a teacher in the centre, therefore, staff involvement as well as the child's sex and the nursery attended were included as potential contributors to variations in children's behaviour.

The following predictions were made: (1) the cognitive content of speech to children would be greater in teachers than in nursery nurses; (2) this would be reflected in higher cognitive levels of play in children from day nurseries with teachers.

Overview

Research on day nurseries in Britain has been sparse. Areas of study have included intervention in the day nursery (Bain and Barnett, 1980; Coleman et al, 1975; Laishley and Coleman, 1978a,b) as well as the organisation and management of nurseries (Bain and

Barnett, 1980; Garland and White, 1980; McGuire and Richman, 1987). Few studies, however, have systematically examined the behaviour of children or the nature of their involvement with adults in such establishments.

The literature to be reviewed here is organised into three chapters. The first (Chapter Two) provides a perspective on local authority day nurseries through an examination of the day nursery tradition, recent developments, and research orientations regarding preschool provision. Chapter Three deals with research on organisational factors affecting the behaviour of staff and children in preschool, such as group size, staff-child ratio and the degree of structure in preschool programmes, followed by a review of research on staff speech to children in preschool. Finally, methodological issues associated with the observation of children's behaviour are discussed in Chapter Four.

CHAPTER TWO: A PERSPECTIVE ON DAY NURSERIES IN BRITAIN

The fragmentation of day care services for under fives in Britain has been highlighted by a number of overviews of provision (e.g. Tizard J. et al, 1976; Hughes et al, 1980). Full-time day care is provided by council day nurseries and by a variety of other day nurseries run by private or voluntary groups. Workplace creches also provide full-time care. Childminders, registered or unregistered, offer part-time or full-time care and may themselves take children to other facilities during the day. Children may attend playgroup sessions for part of the day; these are run mostly by groups of parents or other voluntary organisations. The only form of full-time group care provided by local authorities is the council day nursery, run by social services departments. Such nurseries are the focus of this research.

Day nurseries generally aim to provide care for children as a substitute for what they would otherwise receive at home, where they or their parents are considered to be in special need of such help. Parents pay a means-tested fee and nurseries are open throughout the year; opening hours during the day are from around eight a.m. to six p.m. Most children attend full-time, but part-time places are also available. Whilst not all nurseries accept babies, the age range of children eligible for a place is roughly between six weeks and

five years. Staff are, in the main, nursery nurses with the standard nursery nurse qualification, the NNEB. They are overseen by an Officer-in-Charge (formerly Matron). Recommended staff-child ratios are 1:5 for children over two years and 1:3 for under twos.

In 1985, there were altogether 673 council day nurseries in England and Wales, with 29,134 places for children (Under Fives Unit, 1987). For every hundred children under four years, therefore, the number of places in local authority day nurseries is 0.92 (see Figure 1a). Recent Government figures on provision for under fives do not state the *number of children* catered for by day nurseries; the emphasis instead is on the number of *day care places*, which were reported to be 33,000 between 1983 and 1986 (Social Trends, 1987, 1988). Figures for children in educational establishments are calculated differently (see Figure 1b). Here, it is possible to establish the percentage of children in nursery schools and so on, rather than just the number of places.

Only a small proportion of children under five attend local authority day nurseries. In 1977, the combined figure for council day nurseries and playgroups was one per cent. This figure should be seen in the context of the total proportion of under fives catered for in the state sector, which in 1977 was 16 per cent (Hughes et al., 1980).

Figure 1a. Places per 100 children under 4 years in different forms of day care, England and Wales, 1985 (Source: Under Fives Unit, 1987)

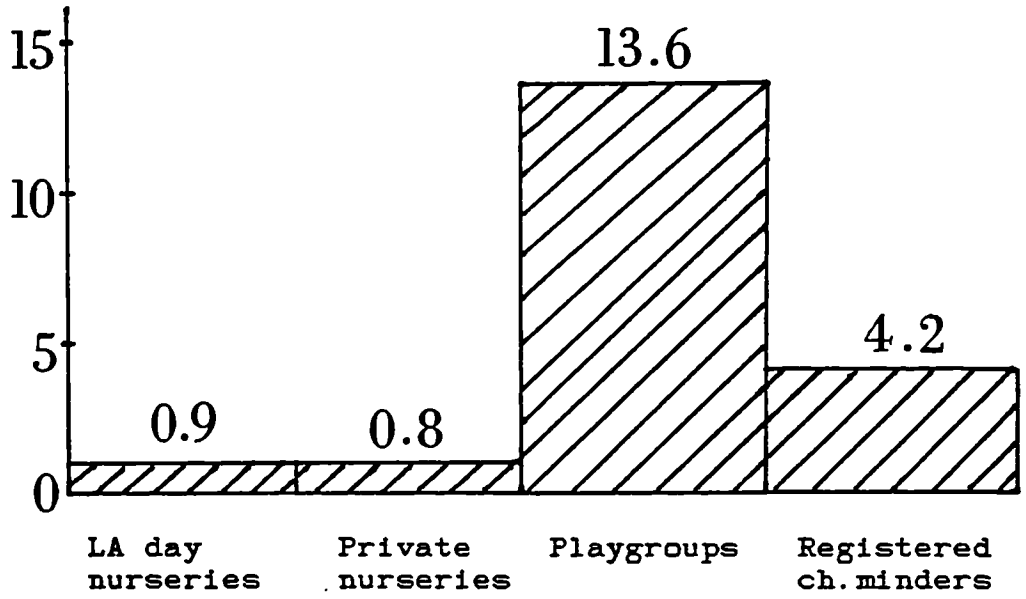
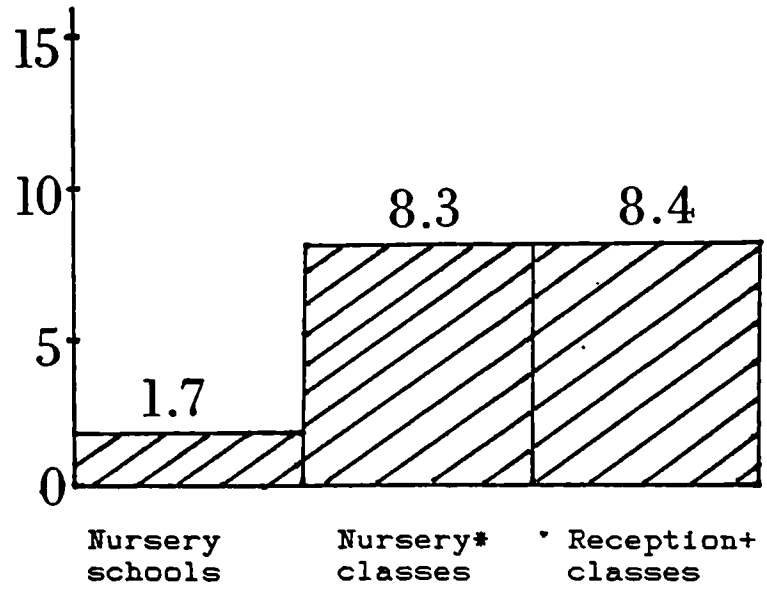


Figure 1b. Percentage of children under 4 years in different educational establishments, England and Wales, 1985 (Source: as for Figure 1a)



* - includes reception classes in Wales
+ - England only

The day nursery tradition

The existence of any form of preschool provision rests on the recognition that the family alone cannot provide all that is necessary for the optimal development of its children. In Britain, such an attitude has long been prevalent in the field of health care, and child health services exist to promote children's physical development. There is less consensus, however, regarding the role of outside agencies in the field of day care for under fives. In the absence of any such consensus, policy and trends in preschool provision have been influenced not only by considerations of the child's developmental needs but also by political, economic and social factors (Riley, 1983; Tizard, J. et al., 1976). The result is the 'muddle and irrationality', described by Tizard, J. (1975), which characterises the current scene.

Historical developments in the provision of day care in this country have been well documented (Pringle and Naidoo, 1975; Tizard, J. et al, 1976). Following the Maternal and Child Welfare Act 1918, responsibility for the day nursery service was assumed by the Ministry of Health. The consequence was an emphasis on the provision of physical care, and an administrative division between day care and education which still exists today.

During this century, the major expansion of day care facilities in the form of nurseries took place during the second world war, when it was deemed necessary to free large numbers of women for work. Day nurseries provided

places for the children of working mothers and were seen then as primarily suitable for children under two years of age. At the end of the war, a deliberate change in policy was made regarding the day nursery service. The prevailing view was that 'the proper place for a child under two is at home with his mother' (Ministry of Health, 1945, p.1; Bowlby, 1951). The Ministry of Health also made it clear that it disapproved of care in day nurseries unless circumstances were exceptional. Mothers, especially those with children under two, were to be discouraged from going out to work:

> ... under normal peacetime conditions, the right policy to pursue would be positively to discourage mothers of children under two from going out to work; to make provision for children between two and five by way of nursery schools and classes; and to regard day nurseries and daily guardians as supplements to meet the special needs (where these exist and cannot be met within the hours, age, range and organisation of nursery school and nursery classes) of children whose mothers are constrained by individual circumstances to go out to work or whose home conditions are in themselves unsatisfactory from the health point of view, or whose mothers are incapable for some good reason of undertaking the full care of their children.
>
> (Ministry of Health, 1945, p.1-2)

Tizard, J. et al., (1976) point out that this document embodies a number of assumptions and beliefs which are still current today. Among them are the beliefs that care by anyone other than the mother is harmful for children under two; for children between the ages of two and five, such care is only appropriate for some of the time. Furthermore, day care outside the home is necessary

or beneficial under certain circumstances - the needs of the country, financial necessity, bad housing, personal inadequacy - whereas nursery schooling is beneficial for all children.

Government policy after the war (Circular 221/45, quoted above) was to increase the numbers of nursery schools and classes and reduce day nurseries to a minimum. From a peak of more than 70,000 places in 1944, the number declined to around 21,000 in 1966. Some local authorities withdrew the service altogether (Pringle and Naidoo, 1975). The policy to reduce day nursery services was accompanied by a change in the criteria concerning eligibility for places. After the war, day nursery places were restricted to those whose mothers were 'constrained' to go out to work, or who were for some other reason unable to care for them, and those whose homes were unsatisfactory from the health point of view (Ministry of Health, 1945).

Following the Seebohm Report's (1968) recommendation that more day nursery places should be made available, the decline in provision was halted and there was a modest increase in the numbers of day nurseries (Tizard, J. et al., 1976). A target of eight places per 1,000 children under the age of five was laid down for day nurseries (DHSS, 1972). This target remains unmet as current levels of provision cannot meet the needs of even officially recognised priority groups (cf Ferri et al., 1981).

A further list of criteria for admission to day nurseries was included in the Ministry of Health Circular 37/68. Priority was to be given to the following groups of children: those with only one parent; children who need temporary day care on account of the mother's illness; those whose mothers are unable to look after them adequately because they are incapable of giving young children the care they need; children for whom day care might prevent the breakdown of the mother or the break-up of the family; children whose home conditions constitute a hazard to their health and welfare; children whose health and welfare are seriously affected by a lack of opportunity to play with others (Ministry of Health, 1968).

The trend for day nurseries to cater only for children with severe problems and disadvantages was accelerated by the transfer of responsibility for their administration in 1971 from the local authority health departments to the new social services departments (Thayer, 1976). Between 1975 and 1983, reasons for admission to day nurseries were more likely to focus on the presence of non-accidental injury, inadequate parenting, poor home conditions or handicap (Van der Eyken, 1984).

The effect of the admissions policy, together with the reduction in places, has been to concentrate a highly selected, disadvantaged population of children, often with varying needs, in a form of provision which has

traditionally defined its role in terms of the promotion of physical welfare. In 1975, 78 per cent of day nurseries surveyed in the Child Health and Education Study (CHES) felt that more than three quarters of their children came from homes experiencing 'some difficulty'. By 1983, this figure had risen to 83 per cent (Van der Eyken, 1984). It is not surprising to find, therefore, that the prevalence of behaviour problems in children has been found to be significantly greater in day nurseries compared to either playgroups or nursery classes (McGuire and Richman, 1986).

This concentration of disadvantaged children in the day nursery has had a number of effects. One of these is the lowering of its status (Ruderman, 1968). The image of day nurseries has been transformed into one of 'emergency treatment' (Fein and Clarke-Stewart, 1973) as well as a 'stigmatised' service (Joffe, 1977). As Tizard, J. et al., (1976) point out:

> experience in other fields of social policy strongly suggests that selective services will in time come to have low standards: a service for the poor ends up as a poor service, whatever the hopes for it might have been.
>
> (Tizard, J. et al., 1976; p.189)

The adverse implications for the quality of service provided by day nurseries are evident. When comparing day nurseries with nursery schools, Boyle (1976) noted that, unlike nursery school staff who were convinced of the positive value of their role, day nursery staff have no

great confidence in their work. The general loss of morale amongst day nursery staff is reflected in this comment from an Officer-in-Charge to the 1975 CHES survey:

> Staff are not attracted to the day nurseries, because of the poor image they seem to have, which is brought about by an indifference shown both at local and government level. There is no support and encouragement for day nurseries, in comparison with the playgroup movement and nursery schools. More money must be made available at government level to enable us to build better day nurseries and to equip them properly. The children being cared for are socially deprived and staffing ratios must be adequate to enable us to fulfil the task of dealing with their problems.
>
> (Van der Eyken, 1984; p.8)

Teachers in day nurseries

Ferri et al., (1981) point out that the change in the clientele of the day nursery does not appear to have been accompanied by a concerted reappraisal of its aims and approaches. Official guidelines to good practice in day nurseries (e.g. Ministry of Health Circulars 5/65 and 37/68) contain little more than passing references to any educational function. This was so despite an apparent lessening of the emphasis on hygiene and health care, in favour of greater concern for children's social and emotional welfare (Pringle and Naidoo, 1975). The Plowden Report (1967) regarded the day nursery as primarily concerned with physical health, while Parry and Archer (1974) found that the five main functions of the service which emerged during discussions with day nursery staff did not include education.

Over the last decade or so, however, there has been a growing awareness of the inadequacies of the current situation. The need to co-ordinate and integrate preschool services has been recognised (e.g. Plowden Report, 1967; Finer Report, 1974; DHSS, 1976) and this has been a major recommendation of several reports on provision for young children (Central Policy Review Staff, 1978; Equal Opportunities Commission, 1978; Trades Union Congress, 1977).

A number of practical innovations have also been attempted, such as the integration of day care and nursery education facilities in a single unit, the combined nursery centre. An evaluation of four such centres was carried out by Ferri et al., (1981). Whilst all four centres had brought together day care and nursery education under one roof, the traditional distinctions between different types of place for children, the accompanying variations in charges, waiting periods and criteria for admission had persisted. As far as the organisation of centres was concerned, the most striking feature was the variety of approach, 'indicating the lack of any accepted blueprint for the implementation of the concept of integrated provision' (Ferri et al., 1981; p.189).

Another approach has been the introduction of trained teachers into the day nursery to work with staff and/or children (ACC/AMA, 1977). The Warnock Report (1978) recommended that greater educational opportunities

should be provided for children attending day nurseries and that wherever possible, nurseries should have a permanent teacher on their staff. Following the 1980 Education Act, local authorities were allowed to release teachers to work in day nurseries; the teachers were to remain active members of their own school staff, working normal school hours and terms, and would be subject to the authority of their own head teacher. This meant that though teachers might be seconded to day nurseries to work alongside nursery officers, they would operate independently and would continue to have an educational base outside the day nursery.

An educational intervention project, involving the use of a teacher attached to a day nursery, has produced interesting results (Holmes, 1980, 1982). The project was set up to try to prevent the need for children in residential or day care to be placed in special schools, and began before the Warnock Report (1978) recommended that day nurseries should have a permanent teacher on their staff. Three-year-olds who were showing signs of disturbed behaviour or delayed development attended a small nursery class attached to a day nursery, for a period of one or one and a half hours every day.

Essential features of the interaction between teacher and children were the stability of the setting, sustained conversations and learning with an adult. The very high adult-child ratio (1:2, with a group size of four children), intensive language stimulation and the

strong emotional bond that developed between teacher and child were considered to be particularly important aspects of the intervention (Holmes, 1980). Although the numbers of children in 'treatment' (eight) and control groups (seven and eight) were small, the results are, nevertheless, encouraging. At school entry, the special group had shown a significant increase in language development, social maturity and in Stanford Binet IQ scores. At six years, most of them were still doing well in infant schools whereas the majority of the control group had already been referred or transferred to some form of special education (Holmes, 1982).

In general, teachers working in day nurseries would not be attached to a special unit. In 1983, only 15 of the 90 day nurseries surveyed in the Child Health and Education Study had the services of a teacher either every session or at least once a week, and only seven day nurseries reported that they had qualified teaching staff working alongside the day care staff in the nursery (Van der Eyken, 1984). Despite the small numbers involved, however, the presence of teachers on the nursery staff had made a significant difference to some aspects of the curriculum. Activities such as 'talking about pictures' and 'problem-solving', with individual children or small groups, were significantly more likely to be pursued in day nurseries with teachers.

Teachers may have had a favourable impact on the curriculum but their presence in the nursery was not

always welcomed by day nursery staff. Van der Eyken (op cit) draws attention to the resentment and suspicions felt by some nursery nurses towards teachers, a situation which was also found in combined nursery centres (Ferri et al., 1981). Despite such difficulties, however, the evidence from the Inner London Education Authority's programme of introducing teachers into day nurseries was that the project had proved to be valuable and was appreciated by teachers as well as day nursery staff.

The present research focuses on local authority day nurseries with teachers. Two groups of day nurseries were studied: teachers were seconded onto the nursery staff in one of these groups, the other group had no teachers on the staff. Schemes aimed at co-ordinating preschool services have not often been studied systematically (cf Ferri et al., 1981). Evidence of co-operation and co-ordination between previously separate agencies has been interpreted as as an indicator of success (e.g. DHSS, 1976; ACC/AMA, 1977) without examining what actually occurs within the agencies. Without this information, however, it is difficult to determine which factors may be influencing the ways in which staff in different centres operate. To do this requires systematic observation, in this case, of the behaviour of children and staff in the two groups of council day nurseries.

The two staff groups involved in the research reported here, teachers and nursery nurses, differ substantially in their training and qualifications (Clift

et al., 1980). Student teachers should possess a minimum of five GCE O-levels and must be at least 18 years of age in their year of entry onto a course of education. Non-graduates may take a three-year course in the theory and practice of education; alternatively, students may attend a four-year B.Ed. course or one-year course for graduates (PGCE). Subjects generally included on education courses are: theory and philosophy of education; child psychology; health and hygiene; history of education; educational organisation and administration; curriculum studies; and at least one other field of study chosen from a number of options.

Most nursery nurses employed in council day nurseries will have obtained the Certificate of the National Nursery Examination Board (NNEB). This is a two-year training course covering the care of children from birth to seven years. In contrast to courses of education, entry to the NNEB Certificate is open to anyone of school leaving age. Individual colleges set their own entry requirements; there are no nationally laid down minimum qualifications. Central components of the course are: health; child development; social relationships; services for families with young children; communication and the creative arts; 'man' and his environment. The personal development of the student is regarded as an essential aspect of the course.

Although the NNEB is the most commonly required qualification for nursery nurses working in day

nurseries, increasingly, other forms of training, especially those with a social work element, are being seen as valuable (CCETSW Paper 12, 1975). Differences in training between nursery teachers and nursery nurses are reflected in the higher status of teachers as well as in the variations in pay and conditions between the two groups of staff (ACC/AMA, 1977).

Differences in training stem from the differing traditions of teachers and nursery nurses. The day nursery tradition, with its roots in the spheres of health and social welfare, has been outlined earlier. In the case of nursery education, two strands in the development of such provision may be distinguished:

> The industrial conditions of the late eighteenth and early nineteenth century focused attention on the needs of what were termed 'the infant poor'. A few people recognised the necessity of rescuing such children from the degrading conditions in which they lived and worked. These pioneers pushed through legislation providing limited protection for the 'little slaves' from exploitation by parents and employers, and a few more mostly at a later period saw the necessity for positive provision to care for working-class children. The difference between this strand and that represented by Froebelian kindergarten is fundamental. The latter developed from concern with education and became identified with a small sector of the middle class, who set up privately run institutions out of the conviction that their children needed something which the home by itself could not give.
>
> (Blackstone, 1971; p. 13-14)

Free nursery education came into being following the 1908 Education Act, as a result of the concern expressed at the large proportion of three- to five-year-olds in

elementary schools at the turn of the century (Blackstone, op cit).

The differing traditions of nursery teachers and nursery nurses appear to exert a powerful influence on their aims and attitudes in the nursery. Different underlying systems of values and judgements have been shown to influence the ratings by teachers and nursery nurses of children's verbal-social behaviour (Gipps, 1982a). Attitudes towards the children in nurseries and their parents also differ among nursery nurses and nursery teachers. Whereas teachers made independent judgements of parents and children, significant correlations were found between nursery nurses' attitudes towards parents and their attitudes towards the children. Furthermore, nursery nurses in day nurseries expressed more positive attitudes towards the children in their care than did their colleagues in schools and centres, a finding attributed to a more 'tender-minded' approach by day nursery staff (Gipps, 1982b). Katz (1971) reports a similar finding for day care workers in the USA. It has been suggested that differences in the educational levels of staff may have an influence on the independence of their judgements.

Younger nursery nurses in schools and centres, however, showed the most negative attitudes towards parents and children. Gipps (1982b) suggests that these attitudes were 'perhaps indicative of a more general underlying hostility' due to the insecurity of their

position as nursery nurses. Working alongside teachers may have been a threatening experience if staff were not mature enough to see themselves as possessing valuable skills in their own right.

The management and practice of nine nurseries offering all-day care in London were studied by Garland and White (1980). Three of these were local authority day nurseries, the other six private nurseries. All the nurseries visited had two kinds of objectives for their children: social objectives, concerned with self-confidence and the capacity to handle relationships; and educational objectives, concerned with readiness for school and language development. Whilst the relative emphasis given to these two objectives varied from one nursery to another, the ways in which they were put into practice depended largely upon the staff's attitudes towards the children.

In their study of 'good nursery practice', Parry and Archer (1974) visited 15 day nurseries in three areas of England. Staff opinions on the most important functions of day nurseries were: to provide day care for children under five years of age in the recognized priority groups; to provide a suitable environment for handicapped children either in the special groups within the day nursery, or within a normal 'family' group; to assist parents in the care and management of their children; to train supervisors, nursery nurses and childminders; and to provide opportunites for medical staff to observe

young children in a group situation.

In contrast, the major aims of nursery education that emerged from a study by Taylor et al., (1972) were to foster: social development; intellectual development; home-school relationships; the development of aesthetic awareness; and physical development. When provided with more specific objectives to consider, teachers rated the acquisition of fundamental social and transactional skills as extremely important. Second in importance were objectives relating to the development of general personal, physical, intellectual and social skills. Least importance was given to objectives concerning the acquisition of formal educational skills, although the value of developing language and reasoning skills was recognised.

The aims of staff in nursery schools, nursery classes, day nurseries and playgroups were explored by Tyler (1980). In all four forms of provision, the socialisation of the child was of great concern. Day nursery staff viewed good physical care and the provision of emotional security as important benefits of their type of nursery. Staff in nursery schools and classes, on the other hand, placed greater weight on the intellectual and linguistic benefits of nursery education. Similar results were obtained by Clift et al., (1980) in their comparison of the aims of teachers and nursery nurses in nine nursery schools and 31 nursery classes. Both staff groups overwhelmingly emphasised 'social' aims but teachers

volunteered more than twice as many statements of 'educational' aims as did nursery nurses. Aims concerned with children's language development were more often voiced by teachers than by nursery nurses.

Given the differing aims and traditions of teachers and nursery nurses, it is not surprising that these two staff groups should have different views regarding their work roles (Clift et al., 1980; Ferri et al., 1981). Teachers in combined nursery centres and those in nursery schools showed little difference in this respect (Ferri et al., op cit). In both venues, the teacher was seen as responsible for the planning and implementation of the nursery's educational programme, and for guiding the progress and development of individual children. Teachers in nursery schools and classes had similar responsibilities (Clift et al., 1980). Combined centres, however, from the teachers' point of view, called for a major increase in the organisational, planning and co-ordinating aspects of their role. This was partly due to the relatively large number of nursery nurses with whom the teachers had to work. Consequently, the amount of contact that teachers had with children was reduced. Ferri et al., (op cit) point out that:

> In all four centres, the teachers' interaction with children was largely confined to those aged three and over (although most felt that their role should extend to the younger ones also ...) and in each case they withdrew groups of older children, especially those soon to leave for infant school, for regular specific sessions with for example, language work.
>
> (Ferri et al., 1981; p.69)

Nursery nurses, on the other hand, saw themselves as responsible for the all-round development and welfare of the children and in particular, for the provision of physical care, emotional security and intellectual stimulation through play and educational activities (Ferri et al., op cit). Where teachers and nursery nurses worked alongside each other, as was the case in combined centres, the descriptions given by nursery nurses of their own work indicated a much more diffuse role than that of the teacher. Different aspects of the nursery nurses's role were emphasised in different types of nursery. Domestic chores and physical care of children received relatively little mention by staff in nursery schools but figured prominently in the role descriptions of nursery nurses in day nurseries. The comparison of a nursery nurses's job in a combined nursery centre with those of colleagues in other forms of provision is illuminating:

> Many felt that the approach of the combined centre both encouraged and facilitated a higher degree of involvement in activities with children than was the case in day nurseries, where there was greater emphasis on physical care and general hygiene. ... Less certainty was expressed as to the relative *status* of the nursery nurse in centres and day nurseries; a few felt that in the day nursery, with 'a room of your own', the nursery nurse had more responsibility and power of decision-making than in the open plan area of the combined centre, where a teacher was in charge.
>
> (Ferri et al., 1981; p. 70)

The compatibility of staff behaviour with expressed views of the aims of nurseries and with their own role in promoting these aims, was examined by means of systematic observations. A great deal of the activity and verbal interaction observed among nursery staff did not involve the children, and this was especially noticeable in the combined centres and day nurseries. For nursery nurses in schools the overall figure for involvement in activities with children was 71 per cent compared with 57 per cent in day nurseries and 52 per cent in combined centres. Teachers in centres appeared to be rather less involved with children than their colleagues in schools (66 per cent and 81 per cent respectively). Both teachers and nursery nurses in schools were more often involved in 'cognitively-oriented activities' than staff in centres and day nurseries. The authors conclude that differences in specific aspects of observed staff behaviour tended to reflect the basic aims and orientation of the various types of provision (Ferri et al., 1981).

From observations of staff behaviour in nursery schools and classes, Clift et al., (1980) found that teachers and nursery nurses could be differentiated by the tasks they were typically engaged in. Domestic activities, however, contributed most to this differentiation. Nursery nurses and teachers were not significantly differentiated in terms of educational variables, such as 'supervision of children', 'conversing with children' and 'involvement in children's

activities'. The authors observe that 'although there was very close *apparent* similarity between teachers and assistants in respect of measures of *quantity* of involvement in children's activities, there might well be differences in quality' (Clift et al., op cit; p. 63). Such differences, they suggest, may be expressed in staff speech to children; this aspect is examined in the present research with regard to teachers and nursery nurses in day nurseries.

In sum, the need for greater educational opportunities for children in day nurseries has been highlighted by the Warnock Report (1978), which recommended that nurseries should have a permanent teacher on their staff. The separate and differing traditions of day nurseries and nursery education were described. Reflections of these can be seen in the different forms of training for teachers and nursery nurses, resulting in differing underlying systems of values and judgements in the two groups of staff, as well as different views regarding their work roles. The present research focuses on local authority day nurseries in which teachers were seconded as well as nurseries without staff. Schemes aimed at co-ordinating preschool services have not often been studied systematically, in terms of what actually occurs within the agencies. To do this requires direct observation, in this case, of the behaviour of children and staff in the two groups of council day nurseries.

Research orientations

Research on preschool provision mirrors the split, highlighted in previous sections, between nursery education and day care:

> While nursery school studies usually aim at demonstrating the extent to which nursery school achieves some positive effect, day nursery research tends to look for possible negative effects of attendance.
>
> (Sjolund, 1973; p.95)

In the sphere of preschool education, a number of studies carried out in the seventies focused generally on changes in the child's linguistic and cognitive skills which were thought to have resulted from attendance at a specific preschool programme (e.g. Tizard, B., 1974; Smith and James, 1975; Halsey, 1972; Woodhead, 1976a). These concerns largely reflect the compensatory tradition in preschool education (Woodhead, 1976b) which arose out of egalitarian post-war reform.

Yet the results of national surveys in this country (Douglas, 1964; Douglas et al., 1968; Davie et al., 1972) showed the failure, in general, of working-class children to succeed within the educational system. Concern at this failure led educational and child psychologists to suggest that these children were 'deficient' in early experience, specifically during the preschool years. This view was supported by Bernstein's early publications (1959, 1960, 1962) which were interpreted by educationists as purporting to show linguistic deficits

in mother-child interaction in lower working-class homes. These linguistic deficits, it was thought, would lead to cognitive deficits and to failure in schools.

The response to this, particularly in the USA, was the promotion of preschool programmes developed in an attempt to improve children's early cognitive and linguistic skills before school entry (e.g. Gray and Klaus, 1965; Bereiter and Engelmann, 1966; Deutsch, 1967; Blank and Solomon, 1968). Similar steps were taken in Britain, on a much smaller scale, following the Plowden Report (1967); these were notably in the Educational Priority Areas (Halsey, 1972; Payne, 1974; Barnes, 1975).

More recently, there have been significant advances in thinking as a result of findings from a number of US studies, the most notable of which are the reports from the Consortium for Longitudinal Studies (Darlington et al, 1980; Consortium, 1979, 1983; Lazar et al, 1982). Results from the Consortium have consistently shown that chidlren who experienced a preschool programme were less likely to be referred to special education classes or required to repeat a grade; they were more achievement-oriented, and their parents had higher educational and occupational aspirations than those of control children (Lazar et al, op cit).

Whereas the majority of these more recent US studies have focused on achievement and the improvement of linguistic and cognitive skills, an exception is Weikart's Perry Pre-School Project. The effects of attendance at

this programme have been examined with regard to later levels of delinquency, unemployment, income levels, satisfaction with work and use of public welfare benefits (Weikart et al, 1978; Schweinhart and Weikart, 1980; Clement et al, 1984). Questions about the long-term effects of preschool education have received a great deal of academic attention; rather less attention has been directed at reviewing the research and the implications for social policy (see Woodhead, 1985; forthcoming).

In contrast to studies of preschool education, research on children in day care often deals with more fundamental emotional problems and with the development of personality (e.g. Heinicke, 1956; Glass, 1949). Whereas cognitive and linguistic skills have been the focus of studies evaluating the effects of preschool education, the effects of day care have been evaluated in terms of the nature of the child's attachment to the mother (cf Kagan et al., 1978; Rutter, 1982). This emphasis in day care research reflects the debate over the significance of separating the child from the mother at an early age.

The expectation that day care attendance will have negative effects on the child has stemmed largely from the publication of Bowlby's influential monograph *Maternal Care and Mental Health* (1951). It was in this report that Bowlby put forward the notion of 'maternal deprivation' - a state in which the child does not experience an essential need, that is a 'warm, intimate

and continuous relationship with his mother'. Deprivation may be mild, as when the child is separated from his or her mother but looked after by someone known and trusted. The monograph focused almost exclusively on the effects of severe deprivation, however, as the context of this work was one of children displaced during the war. Bowlby argued that research, mainly in orphanages and hospitals, showed that maternal deprivation of this kind 'may entirely cripple the capacity to make relationships with other people'.

It is often presumed that the publication of Bowlby's monograph (op cit) was instrumental in the demise of the war nurseries. This was not the case: the withdrawal of state provision for childcare had begun as early as 1945. Four years before the publication of *Maternal Care and Mental Health*, there were 879 day nurseries being maintained by local authorities, a drop of almost 700 compared with the wartime peak (see Riley, 1983).

Bowlby's early statements about the essential need for a young child to have a continuous relationship with one permanent mother-figure are not compatible with the research evidence now available on children's development (Rutter, 1972; Tizard, B. and Rees, 1974; Schaffer, 1977). In particular, Bowlby's view that day care is in itself damaging, due to his belief that even transient separations can damage the security of the child's attachment to his or her mother, cannot be supported. As

far as current Western society is concerned, a considerable body of research carried out in several different countries has not found evidence that day care by someone other than the mother necessarily has damaging effects on the child (Belsky and Steinberg, 1978; Belsky et al., 1982; Clarke-Stewart and Fein, 1983). Whilst empirical findings to date do not suggest that the attachment between mother and child is affected by separation due to day care per se, children's individual traits and family situations have been shown to influence their response to early group care (Gamble and Zigler, 1986).

Studies investigating the possible effects of day care on the attachment between mother and child have been numerous. Few studies of this sort have been carried out in the UK, however, and the dangers of attempting to seek parallels between them and day care within the context of social policy in this country should be borne in mind. Local authority day nurseries in Britain cater specifically for children from families facing serious difficulties. Unlike nurseries in Scandinavia and North America, they do not generally provide for the children of working mothers.

Furthermore, it is clear from the growing volume of research that it makes little sense to generalise about the effects of day care on development. Day care in itself cannot be considered a unitary experience for all children (Kagan et al., 1978) and the same is true for

preschool education. Increasingly, the emphasis in research is on indicating more clearly, the specific aspects of early group experience which may affect the child's development (e.g Swift, 1964).

CHAPTER THREE: ORGANISATION OF PRESCHOOL CENTRES - SOME FACTORS AFFECTING THE BEHAVIOUR OF STAFF AND CHILDREN

Effects of group size and staff-child ratio

In recent years, the emphasis in research on day care and early childhood education has shifted from determining whether or not such experiences make a difference in children's development to investigating the specific factors that affect the quality of such programmes. Group size and staff-child ratio are two such characteristics of day care centres that affect children's experience (Asher and Erickson, 1979). When two-year-old children in day care were observed under staff-child ratios of 4:1, 8:1 and 12:1, their general activity rate was found to decrease as ratio increased. The caregivers' behaviour, on the other hand, increased from approximately equal levels at the two lower ratios to very high levels at the largest ratio. Not surprisingly, each adult had to work much harder when responsible for a larger number of children.

In an early observational study of 69 day care centres in California, Prescott et al., (1967) found that when the size of the centre exceeded 60, more emphasis was placed on rules and routine guidance than when the size ranged from 30 to 60 children. Large centres were found to be less flexible in their scheduling, offered children fewer opportunities to initiate and control activities and had staff who displayed less sensitivity

to the individual needs of the children (Heinicke et al., 1973).

Most of these results have since been replicated in the National Day Care Study, a large-scale study of 64 day care centres in Atlanta, Detroit and Seattle (Ruopp et al., 1979). Group size was reported to be the single most important determinant of the quality of the child's experience, in the case of three to five year olds. In groups of less than 15 to 18 children, caregivers were involved in more social interaction with the children (questioning, instructing, responding, praising and comforting). Staff were also less likely to engage in simple monitoring of children and in interaction with other adults.

The activities and behaviour of children engaged in free play are also affected by group size (Smith and Connolly, 1980). Table play, as well as records of no activity, were more common in larger classes whereas fantasy play occurred more frequently in smaller groups. The National Day Care Study reported that children in smaller groups were less often in conflict with one another and were less frequently observed to wander aimlessly or to be uninvolved in tasks and activities. They showed more co-operation, verbal initiative and reflective behaviour, and were more responsive to initiatives by adults and other children. Compared to their peers in larger groups, children in small groups also made more rapid gains on standardized tests. Even

when favourable staff-child ratios prevailed in the larger groups, the overall pattern of findings held true; more adults did not appear to offset the negative effects of grouping large numbers of children together (Ruopp et al., 1979).

Group size has been shown to be a significant influence on the adult's speech to children (Schaffer and Liddell, 1984). Sixteen nursery nurses, drawn from a total of six British day nurseries, were each observed in two group conditions: once with a group of four children and once with a single child. The adults were asked to help each child with a simple construction task. Staff were more likely to express themselves in the direct imperative and less likely to use declarative statements when they were with the group of four children. Prohibitive expressions were also more common in this condition.

With regard to staff-child ratios, Smith and Connolly (1980) found that worsening ratios resulted in staff slightly increasing the frequency of their contacts with children, but not enough to compensate for the reduction in the contact made with any individual child. Caregivers were faced with relatively more utterances from children, more of which went unanswered. Conversations between adults and children tended to be shorter and more staff talk was about routine matters or prohibitions. Children tended to spend more time talking to peers than to staff. Similar results were obtained by

Schaffer and Liddell (op. cit.).

The effect of different staff-child ratios is also evident from a study by O'Connor (1975), carried out in two preschool centres with similar, largely child-centered programmes. In one of these, the ratio of caregivers to children was 1:3.5 and in the other, 1:7. There was more social exchange between children and adults in the first centre and more peer interaction in the second. Sylva et al., (1980) found that children in centres with excellent staff-child ratios (between 1:5 to 1:7), compared to those in centres with good ratios (between 1:8 and 1:10), engaged in more educational activities, such as small scale construction, art and use of structured materials. Conversations with adults were twice as frequent in these centres and children were more often engaged in play that was challenging.

Favourable staff-child ratios have also been shown to be related to some aspects of the caregiver's behaviour (Ruopp et al., 1979). Higher ratios (fewer children per caregiver) seemed to make management of children easier; staff spent relatively little time commanding and correcting children. They also spent more time interacting with other adults and carrying out necessary routine activities such as cleaning, arranging materials and the like. Tizard, B. et al., (1976c) found that the effect of improving the staff-child ratio is mediated by staff behaviour. If staff see their role as mainly supervisory rather than educational then children

will not benefit greatly from an improved staff-child ratio. The social structure of a centre is another factor which can effectively reduce the contribution of individual staff members. Assistants and students tend to interact much less with the children than the staff member in charge of a group (cf Tizard, B. et al., 1972).

Degree of structure in preschool programmes

In addition to group size and staff-child ratio, an important feature of preschool centres that affects children's experience is the curriculum. Studies examining different preschool curricula have tended to compare several centres with different programmes, with regard to the behaviour of the children or their scores on standardised tests. Johnson and Ershler (1982) point out that:

> Although considerable research has been conducted over the past two decades evaluating the effects of preschool curricula on cognitive development, the impact of different preschool programs on children's play behaviours has been to a great extent less thoroughly investigated. This is unfortunate since play behaviours and cognitive abilities may be reciprocally related ...
>
> (Johnson and Ershler, 1982; p.130)

The free play of 25 children enrolled in two types of preschool programme, discovery-based and formal-education, was observed by Johnson et al., (1980). More constructive play occurred within the formal programme whereas functional play, unoccupied and onlooker were prevalent in the discovery programme. Although the social

level of play and total amount of dramatic play were the same across classrooms, more transformations during symbolic play were evident in the formal-education classroom. The authors conclude that the theoretical foundation upon which a programme is based can influence the behaviour of young children at preschool.

Beller et al., (1971; cited in Beller, 1973) examined the effects of different preschool programmes on levels of play in children. The study was carried out in three different nursery programmes: two Montessori classrooms, two 'adult-centred' classrooms and two 'child-centred' classrooms. The authors reported less play generally in the Montessori classes, but especially less symbolic play. Complex symbolic play occurred least in the Montessori classes and most in the 'child-centred' classes.

A different pattern of results emerges from a study by Reuter and Yunik (1973). The authors compared a Montessori school, a university laboratory preschool on a token economy programme and a parent co-operative preschool run on traditional lines. Interaction amongst children and their peers was highest in the Montessori school and least in the university preschool; the converse was true for frequency of interaction amongst adults and children. The Montessori environment in this study, therefore, seemed nearest to a child-centred or free play environment.

Staff-child ratio, however, was much lower in the

Montessori school (1:12) compared to the other two preschools (1:3.5) and it appears to be this factor, rather than differences in curricula, which would explain the results. Support for this notion comes from the finding by O'Connor (1975), referred to earlier, that more social exchange between children occurred in classes with lower staff-child ratios. The influence of different ratios is further underlined by the results from a study comparing two classes in a Montessori school with two classes in a nursery school (Murphy and Goldner, 1976). With staff-child ratio constant (1:8), there was little difference in the amount of time children spent in social interaction with peers and adults in the two types of classes.

Findings of a study by Rubin and Bryant (n.d., cited in Johnson and Ershler, 1982) are consistent with the results of Beller et al., (1971). Preschoolers attending Montessori programmes were often observed in solitary and constructive-parallel play but were significantly less often engaged in functional- and dramatic-cooperative play. However, Griffing (1980) found that higher SES children in Montessori kindergartens performed very imaginatively in semi-structured play scenarios, when given an opportunity, even though sociodramatic play was not part of their preschool curriculum. As Johnson and Ershler (1982, p.135) put it, 'Curricular effects seem to pertain to play performance, not competence'.

Differences in preschool curricula are often

characterised by the degree to which the adult plays a directive role within the programme. Smith and Connolly (1980) comment that:

> A common distinction, based on observations of such programmes in practice, is to what extent the staff or teachers direct children to certain activities, or alternatively leave them to make their own choices. These are sometimes referred to as adult-centred and child-centred, or structured and unstructured programmes.
>
> (Smith and Connolly, 1981; p.200)

Johnson and Ershler (1982) define the degree of structure in a programme as the extent to which activities in the classroom are teacher-led as well as the relative importance given by the teacher to convergent as opposed to divergent forms of thinking. Teacher-led activities refer to those activities in which the adult 'plays a prevalent role in directing children's behaviours'. Interestingly, the most important factor to emerge from a survey by Soar (1970; cited by Gordon and Jester, 1973) of teacher practices in classrooms was labelled 'teacher-directed activity versus pupil-selected activity'.

Sylva et al., (1980) employed a different definition of structure. Two approaches were used, one focusing on the nature of tasks given to children and the other on the regularity of the daily programme. In general, however, it seems that structure tends to be defined by the nature of adult involvement with children.

For example, Huston-Stein et al., (1977) compared 13 classes in five preschool centres for the 'degree to

which the educational programme involved adult-directed activities'. Less structured classrooms, thus defined, were correlated with more 'prosocial behaviour' to peers, more imaginative play and (with marginal significance) more 'prosocial aggression' and 'hostile aggression'. On the whole, children in highly structured classes showed more self-regulatory behaviour except in the area of independent task persistence. Children in these classes were more attentive at circle time and were more likely to help clear toys away after free play. Although the findings were correlational, the authors conclude that as these occurred independently of the confounding variables of class size, ethnicity and teacher warmth, the results can be attributed to classroom structure.

'Open' and 'closed' structure day care programmes were associated with differing forms of children's behaviour (Prescott, 1973). Fourteen of such programmes were examined: structure was determined by 'the administrator's policies on teacher versus child initiation of activities'. Children in the open structure programmes scored higher on total 'thrusting behaviour', 'receiving help', and 'tactile/sensory exploring'. Closed structure programmes had children who scored higher on 'meets (teacher) expectations', 'receives frustration', 'rejection or pain', 'tentative behaviour', 'not attending to external stimuli' and 'ignores intrusion'. Children's attention was more often directed at peers, rather than adults, in the open structure classes.

In Britain, differing educational orientations in nurseries have been shown to be associated with differences in children's play (Tizard, B. et al., 1976b). Three types of centres were studied. One group, the 'E-' centres, were defined as not staffed by trained teachers, not under the aegis of an educational authority and with no professed educational aims. They had been set up to care for the children of working mothers and/or to provide children with opportunities to play. 'E' centres were traditional English nursery schools, run by educational authorities and staffed by trained nursery teachers. These centres pursued avowed educational aims through the medium of free play. 'E+' schools resembled 'E' centres in most respects but also incorporated a language instruction or concept development session into the school day.

Traditional nursery schools showed the lowest amount of symbolic play and the highest degree of 'appropriate' play. The authors suggest that the amount of symbolic play may have been affected by the direction of staff activity. Activities for the children to explore, such as collage making, finger painting and so on, were more often provided in the traditional nursery schools. These materials usually evoked 'appropriate' play - children used the materials in the manner intended by the teacher - but their use rarely resulted in symbolic play.

In their study of combined nursery centres, Ferri et al., (1981) observed three- and four-year-olds to

discover how far the educational and social aims of the centres were reflected in the children's cognitive or social play behaviour. The authors were also interested in whether the play of children in combined nursery centres differed in any way from that of children attending day nurseries or nursery schools. In general, it appeared that there were no marked differences in the behaviour of children in the different types of nursery. For example, there was little difference between children in centres and day nurseries in terms of social grouping or verbal interaction with staff.

However, those attending the combined centres took part in proportionately more 'cognitive' activity (e.g. table games, art work, books) than children in schools or day nurseries, and were less often observed in 'drifting' or 'repetitive' activity. In fact, the most striking difference in the observed behaviour of children in combined centres compared to those in day nurseries lay in the greater frequency of cognitive play in centres. In day nurseries, children spent an equal amount of time 'watching or listening' as they did in cognitive activity. Although the amount and quality of equipment available in each nursery may have been an important factor here, what seemed to be more relevant was how the available materials were used.

> In general, day nursery staff appeared more frequently than those in centres and schools to confine their own involvement to 'putting out' play materials and equipment, and subsequently offering only 'minimal supervision' ... rather than

participating in and developing a learning situation.

(Ferri et al, 1981; p.129)

Few experimental studies of preschool programmes have been carried out. One of the most notable, a comparison of four prekindergarten programmes, is that by Miller and Dyer (1975). Over 200 four-year-old children were assigned randomly to one of two Montessori classes, four traditional classes (an enrichment programme with an emphasis on free play), four Bereiter-Engelmann classes (an academic drill approach) and four Darcee classes (emphasis on aptitudes and attitudes). Observations carried out in each programme showed that they were distinguished by specific forms of behaviour in children and adults. The Montessori and traditional programmes were described as relatively child centred and slow paced. In contrast, the Bereiter-Engelmann and Darcee programmes were described as relatively teacher-directed and fast-paced. Children in traditional classes were observed to engage in a great deal of conversation and role play; those in Montessori classes showed more manipulation of materials but were also often engaged in conversation.

Comparisons obtained after eight weeks and again after six months, indicated that different programmes had different effects. Children in the Bereiter-Engelmann programme scored higher in cognitive and academic areas whereas the effects of the Darcee programme were most

evident in the areas of motivation, attitudes and social participation. Children in traditional classes scored well on curiosity and verbal-social participation; those in the Montessori classes did well on curiosity and inventiveness. The cognitive gains found in the Bereiter-Engelmann programme were relatively transient, however. Four years later, the most stable effects found when the children were in Follow Through were in non-cognitive areas.

The differential effects of five preschool intervention programmes varying in structure were evaluated by Karnes (1969; cited in Beller, 1973). Structure was defined as the degree of specificity and intensity of teacher-child interaction. The less structured end of the continuum was represented by two programmes, traditional and community-integrated; a Montessori class was intermediate and two highly structured intervention programmes (Ameliorative and Direct Verbal) were also studied. A stratified sample of 91 children (matched for IQ) was assigned to the different programmes.

At the end of the preschool period, there were no differences between groups on the Peabody Picture Vocabulary Test, but the more structured groups showed higher scores on the number readiness subtests of the Metropolitan Test. The Direct Verbal group had higher Stanford-Binet scores than the Montessori and community-integrated groups, but not higher than those of children

in the traditional programme. The results, however, might have been due to differences between programmes in the training and supervision of staff, as well as in staff-child ratios, since these factors were confounded with programme conditions (Beller, 1973).

An experimental study by Thompson (1944) focused on teacher involvement in two groups of four-year-olds assigned to separate experimental programmes. The same materials were available to both groups. Programme A, in which teacher involvement was low, was experienced by eleven children who were free to choose their own activities. Teacher involvement was higher in programme B; the adult established friendly relations with the children but did not direct them to activities. Eight children were present in this condition. Pre-tests showed no differences between the two groups of children. Observations during the eight-month duration of the two programmes confirmed that teachers in programme B were giving more help and information to the children, more structured suggestions and asked them more leading questions. Teacher restrictive contacts, such as prohibitions or telling off, did not differ significantly between the two groups.

Post-tests carried out at the end of the eight-month period showed that children in programme B, with the friendly and involved teacher contacts, were now more constructive when faced with possible failure, more ascendant, had higher social participation scores and

showed more leadership. Thompson's study has been described by Sears and Dowley (1963) as 'unique in research on teaching in the nursery school'. Due to the controlled experimental design, clear inferences can be drawn regarding the impact of high and low staff involvement on children's behaviour. The study's main limitation is the small sample size in each group.

A similar study carried out more recently by Smith and Connolly (1980), compared the effects on children of two contrasting ways of organising the preschool: one, a structured organised-activities regime and two, a free play regime. Children in the organised activities condition were more likely to be engaged in conversation with staff, and to be encouraged to carry out specific activities. The presence of adult support suggested potential benfits for children's attention and concentration span at activities. The free play condition had the advantage of more peer interaction, with more spontaneous fantasy play sequences, and larger subgroups of children in group play. There was also more gross physical activity and apparently, more stable control of conflicts with other children.

The recent introduction to Britain of High/Scope, an American preschool curriculum based on Piagetian ideas, 'raises a number of important issues about adult intervention in preschool centres, the balance between "work" and play, and the extent to which a structured preschool curriculum can be tailored to local needs'

(Sylva et al., 1986; p.3). Two matched groups of children, 50 in all, were observed in five centres before and after the implementation of the High/Scope curriculum.

After the first stage of implementation, increases in manipulative and gross motor play were matched by decreases in expressive activities as well as in games and rough-and-tumble play. The authors point out that whilst cognitive aspects of the children's behaviour were enhanced during this stage, the trend away from expressive play may give rise for concern. Children spent more time supervised in groups by adults and when not part of such groups, tended to work or play either alone or in pairs. Adults interacted more with children in ways that were caring, 'teaching' and supporting.

When the High/Scope Preschool Curriculum study was established in 1967, the the prevailing view was that the most effective preschool programmes would be those that espoused a structured curriculum. Many educators had interpreted the structured curriculum to mean essentially a didactic programme. The Curriculum study examined this issue of structure by comparing three theoretically diverse curriculum approaches. The conclusion from the monograph on results at the age of ten years (Weikart et al, 1978), was that all three preschool curriculum models appeared to achieve the same positive results regarding children's intellectual and scholastic performance.

Weikart (1988) comments:

> These findings of equivalence in intellectual and academic outcomes were surprising because the central issue in early childhood education has long been the selection of a curriculum. Early childhood educators have divergent views about how best to meet the needs of children and achieve instructional goals from their theoretical perspective. The curriculum study showed us that diverse curriculum models can be *equally* effective in improving children's education and that this success does not appear to derive from the curriculum models themselves, but from the way the programmes are administered and operated.
>
> (Weikart, 1988; p. 35-36)

The finding that differing preschool programmes have equivalent results on children's abilities, has since been verified by the Consortium for Longitudinal Studies (1983).

A more complex conclusion, however, is suggested by Weikart (op cit), as a result of new data from the High/Scope Preschool Curriculum study. Results for children aged fifteen produced two major findings. The first is a replication of the main finding, outlined above, of the Perry Preschool project and other studies in the Consortium for Longitudinal Studies (1983). The second finding is one of significant differences among the groups experiencing the various preschool programmes - at age fifteen - in terms of social behaviour (Schweinhart et al, 1986). The group in which the teacher-directed programme Distar was used, when compared to the 'open-framework approach' (High/Scope) and the child-centered approach, showed higher rates of self-

reported juvenile delinquency and were more likely to report that they were not socially well-adjusted. The extent to which such differences are directly attributable to the effects of preschool programmes, however, is debatable (see Woodhead, 1985, forthcoming). And if education is thought to be the *factor* causing differences in children's social behaviour at the age of fifteen, it is not clear why it should be *preschool education* rather than education in the intervening years.

On the basis of the latest findings from the High/Scope Preschool Curriculum study, Weikart (1988) concludes that:

> The latest interpretation from the study, tenuous though the data are, now must be that a high-quality preschool curriculum is based on *child-initiated learning activities'*. (p. 38)

Later in the same article, he states:

> We also *know* that to be an effective program of high quality a program must represent a child initiated learning approach. (p.39, emphasis added).

From an 'interpretation' based on 'tenuous' data, Weikart moves to a statement of what 'we know' about the characteristics of high quality preschool programmes. Even presuming that it is possible to assess the quality of a preschool programme in terms of its 'effects' on children in adolescence, the results of the Curriculum study could be interpreted as simply highlighting potential difficulties posed by the Distar programme. It does not follow from this that a child initiated learning approach is necessarily a sign of high quality.

The research reviewed in this section has highlighted a specific dimension of the preschool curriculum, namely, the degree to which it is 'adult-centred' or 'child-centred' regarding initiation of activities. Several studies show that the nature of the curriculum can have an influence on children, not only in terms of intellectual performance but also with respect to play behaviour. The degree of structure in the preschool ultimately depends on factors such as the staff-child ratio as well as the attitudes and overt actions of staff. It is to a consideration of one type of overt action, namely staff speech to children, that we now turn.

Staff speech to children in preschool

Staff involvement with children is increasingly recognised as an important factor in children's cognitive and linguistic development. Research on special instructional programmes has tended to ascribe cognitive gains in children to the effects of the programmes introduced. Most studies have relied on pre- and post-testing and, with few exceptions, staff-child interactions have not been observed either during the special sessions or during the rest of the day (cf Beller, 1973; Smith and James, 1975; Clarke-Stewart and Fein, 1983). The relative importance of these periods is, therefore, difficult to assess.

Woodhead (1976b) suggests that the degree of meaningful adult-child verbal interaction, rather than

the degree of structure per se, may be more critical for the success of structured programmes in preschool. The way in which staff talk to children will change if they become enthusiastic about an educational programme and it may well be this alteration, rather than the programme itself, which is responsible for any improvements in the child's cognitive or linguistic abilities (cf Tizard, B. 1974; Woodhead, op cit). Such an effect would explain the early reports that a variety of different approaches have an equivalent effect in increasing children's achievements (e.g. Weikart, 1972). Although more recent findings by Weikart and his colleagues refer to differences among preschool curriculum groups in terms of social behaviour, as mentioned earlier, there were no significant differences among these groups in terms of intelligence and achievement scores (Weikart, 1988).

Differing educational orientations in nurseries have been shown to be associated not only with differences in children's play (Tizard, B. et al, 1976b), as discussed earlier, but also with differences in the behaviour of staff (Tizard, B. et al, 1976c). Staff in nurseries with a language programme ('E+' schools) spent more time interacting with the children rather than supervising them or putting out play equipment. In those centres which did not espouse an educational aim, there was least talk addressed to the children, the lowest amount of information was given, fewest suggestions for activities were made, and the least time was spent explaining or

showing children how to do things. The authors conclude that it is not the 'programme' itself which is important but the behaviour of the staff throughout the day; in 'E+' schools, this was influenced by the staff's implementation of a twenty-minute language session.

Although there was clear evidence that the behaviour of staff was affected by the social class of the children they were looking after, and by their beliefs about the function of the centre, it was not so clear that staff behaviour actually affected the children's achievements. All middle-class groups of children had higher mean test scores than working-class groups, and within each social class the nature of staff behaviour in the different types of centre did not appear to affect test scores. There was one exception, however. Working-class children attending nursery schools with special language programmes had significantly higher language scores than the other working-class children (Tizard et al., op cit).

Differences between the behaviour of middle- and working-class children at school have often been explained in terms of a belief in 'working class verbal deprivation'. In Britain, this view has been put forward most forcefully by Joan Tough (1976). According to Tough, children from working class homes have little experience of having their questions answered, or of hearing explanations, reasoning, predictions and projection into the experience of others. This view has been challenged by a number of authors (e.g. Wells, 1977; Tizard and

Hughes, 1984). In their comparison of children at home and at school, Tizard and Hughes (op cit) found that:

> Although there were social class and individual differences between mothers, *all* the mothers made comparisons, offered explanations, used 'If ... then' constructions, and linked events in time, and all but one used language for recall and to discuss the future.
>
> (Tizard and Hughes, 1984; p. 141)

Tough's emphasis on the 'deficits' of young children from working class backgrounds, regarding their behaviour in school, ignores the possibility that a child's limited contribution to a conversation may reflect his or her social unease rather than a limited grasp of language (cf Tizard et al, 1983). Based on the view that working-class children have a very limited model of language usage presented to them at home, Tough (1977) focuses on one part of the nursery programme, the dialogue between adults and children. She devised a training programme for teachers which would enable them to appraise and foster children's complex use of language. Whilst the adult-child dialogue is also the focus of the teaching method used by stuctured programmes, Tough argues that to be successful it must be used flexibly by a teacher who is sensitive to the character of the children with whom she works.

Such an approach makes great demands on staff; the dangers inherent in the informal curriculum of nursery education have been pointed out by Woodhead (1976b).

Thomas (1973), in a study of the quality of children's language in response to the educational environment provided by staff, found a lack of adult speech serving a specifically educational purpose. Staff speech to the children was mostly concerned with their care function and their talk did not appear to be adapted to children's ability level.

Observations of the role performance of nursery staff (Hutt et al., n.d., cited in Tyler, 1980) showed that staff tended to spend the major part of a session actively working with, supervising or monitoring children. Tizard, B. et al., (1976c) studied the educational environment provided by staff in twelve nurseries. Although adults were actively involved in supervising children's activity, they were not often observed to engage in direct instruction. The behavioural categories that occurred most frequently were 'questions and gives simple information', 'deals with play equipment' and 'minimal supervision'. Activities least frequently observed included, for example, questioning a child to help her solve a problem, demonstrating a skill, or suggesting ways in which a child might extend an activity.

A number of fundamental questions about the role which adults can play in helping young children think and learn, are raised by Tizard and Hughes' (1984) study of four-year-old girls at home and at school. In contrast to the received wisdom that parents should learn from

professionals, the authors point out that 'It was clear from our observations that the home provides a very powerful learning environment' (p. 249). Particularly significant features in this respect are: the extensive range of activities that take place from the home base; the shared common life, both past and future, of parent and child; the small number of children who have to share the adult's time and attention; that learning at home is often embedded in contexts of great meaning to the child; and finally, the close and often intense relationship between mother and child.

Furthermore, Tizard and Hughes state 'it was ... clear that the learning environment of the nursery school is very different from that of the home' (p. 254). The most striking difference between home and nursery school was the way in which the school focuses on play. This has implications for the way in which staff speak to children.

> ... because staff-child conversation focuses on play, it tends to be concerned with the 'here and now' to a greater extent than conversations at home. This situation is somewhat paradoxical, since one function of schooling is to extend the child's intellectual horizons. It was, however, the mother who linked the child's present to her past and future, and to the world beyond her own experience. Because the staff know little of the child's life outside school, and almost nothing of her past and future, they cannot integrate her experiences in a way that is possible for a parent.
>
> (Tizard and Hughes, 1984; p.255)

Similar results for staff speech were found by Meadows and Cashdan (1983). Observations of twenty nursery teachers in ten nursery schools showed that teachers' speech to children consisted mainly of simple questions, statements, directions and general social oil. The talk of nursery teachers, compared to both middle- and working-class mothers, contains a much higher proportion of cognitive demands (Tizard et al., 1982).

Some indication of the differing ways in which groups of staff, namely, teachers and nursery nurses, speak to children is provided by Clift et al., (1980). Ten pairs of teachers and assistants in nursery schools and classes were compared, working on the same type of activity. Whereas nursery nurses more often used activities as an end in themselves, teachers seemed more likely to use an activity as a means to a variety of ends. There was also a tendency for teachers to make complex extensions to children's utterances. Nursery nurses tended to make more 'directing' statements which were very simple in structure.

The general 'cognitive' content of the nursery programme is quite low. Wood et al, (1980), in a detailed examination of the tasks and activities engaged in by nursery teachers and playgroup workers, found that the most commonly used speech forms were a mixture of conversation, management and rapport.

> Note that there is nothing on (fantasy) play, little to do with the shared doing or making of things and nothing by way of logical reasoning or causal thinking in this list. The language used ... is

> usually the language of management and description, with an element of conversation about events and happenings outside the immediate environment.
>
> (Wood et al., 1980; p.44)

The very small amount of staff time spent in play reflects the current educational ideology that children's play should be self-directed. As Tizard, B. (1977) argues, however, such an approach represents a neglect of a valuable medium for communicating with children at both an intellectual and an emotional level.

Studies of staff behaviour in the preschool setting have been confined almost exclusively to the field of nursery education. One exception is a comparative study of teachers and nursery nurses in combined nursery centres, nursery schools and day nurseries (Ferri et al., 1981). In both centres and schools, teachers were more frequently involved in talk with the children and were more likely to use cognitively-oriented language. Within the centres, teachers were also more often observed in 'social-verbal interaction' with children than were nursery nurses, but there was no difference in this respect between the two groups of staff in nursery schools.

It was among nursery nurses in centres that the overall low level of staff interaction with children seemed most marked. Although staff in centres, compared to those in day nurseries, showed more 'social' interaction with children, the cognitive content of their

behaviour was only slightly greater and they were much less involved in 'child care' activities than their day nursery colleagues.

> It would seem then that neither the avowedly educational aims of the combined centres nor the presence of trained teachers in the nursery had a noticeable effect on the 'cognitive' behaviour of the nursery nurses working in this type of provision.
>
> (Ferri et al, 1981; p.93)

Possible explanations for this finding were that nursery nurses in centres were somewhat younger than their colleagues in the other nurseries and younger staff tended to interact less with children. In addition, it seemed that the observed behaviour of nursery nurses in combined centres may have reflected the apparent lack of consensus over the respective roles of teachers and nursery nurses in centres (Ferri et al., op cit).

The provision of greater educational opportunities for children in day nurseries was recommended by the Warnock Report (1978), which went on to suggest that wherever possible, nurseries should have a permanent teacher on their staff. Implicit in this recommendation is the notion that educational opportunities are provided primarily by teachers. Such an assumption is also evident in the Bullock Report (1975), where it is suggested that the skills and knowledge of the infant teacher should be used to give 'measured attention to the children's language needs'. Tizard, B. et al, (1980) refer to the 'widely held assumption that nursery and infant teachers,

because of their special training, are in fact likely to be especially successful at promoting language development' (p. 51).

Within the context of the day nursery, the assumption is that teachers are more able to provide the necessary educational experiences through their talk with children, and that teachers and nursery nurses do, in fact, differ in the ways in which they speak to children. The evidence for such a claim, however, is less clear cut. One of the aims of the present project is to investigate whether diferences in speech to children, particularly in terms of cognitive content, *can* be discerned between teachers and nursery nurses in local authority day nurseries.

CHAPTER FOUR: OBSERVING CHILDREN'S BEHAVIOUR - METHODOLOGICAL ISSUES

One of the main objectives of the research to be reported here, is to compare the behaviour of children in two types of local authority day nurseries. The emphasis is on observing children's customary levels of social and cognitive functioning as expressed in their spontaneous behaviour in the nursery. The traditional approach of assessing cognitive functioning through psychological tests is unsatisfactory for a number of reasons. The range of functions tested is narrow; estimates obtained from young children are often unreliable; the contents of tests are culturally biased; and the question and answer format itself may lead to an underestimate of some children's competence (Anastasi, 1968; Vernon, 1970). For these reasons, indicators of children's social and cognitive functioning were based on observations of children's play.

Defining what is meant by play is notoriously difficult. Rubin et al., (1983) claim that there is no one definition of play but rather, a number of overlapping criteria. The authors use the following features to characterise play: intrinsic motivation; attention to means rather than ends; nonliterality; freedom from externally applied rules; active engagement; and finally, play is distinguished from exploration. Similar criteria are also employed by Garvey (1977). A

more explicit model along these lines is that of Krasnor and Pepler (1980). Four criteria are postulated, namely flexibility, positive affect, nonliterality and intrinsic motivation. Increasing intersection of these criteria result in increasingly playful behaviour. Empirical support for this notion comes from Smith et al., (1985) who found that play was more strongly associated with the simultaneous presence of several criteria.

A more pragmatic solution to the problem of defining play is to define categories of behaviour which would be generally accepted as *not* play, and to assume that any other apparently non-goal-directed behaviour is playful (Tizard, B. et al., 1976a). This was the approach adopted in the present research. The background to the observation of children's social and cognitive functioning - the two areas of concern here - will be reviewed in turn.

Social participation

The classic paper on social participation is that of Parten (1932). In this study, Parten introduced six categories of participation: unoccupied, onlooker, solitary, parallel, associative and co-operative. Forty-two children ranging in age from less than two years to just over four years old were studied during one school year. According to Parten, the various forms of social participation are age related: solitary and parallel play are more typical of younger children whereas associative and co-operative participation are found more often in

older children.

A replication of Parten's (1932) study carried out by Barnes (1971) showed that three- and four-year-olds engaged in significantly more unoccupied, solitary and onlooker behaviour, but significantly less associative and co-operative activities than Parten had found in her original sample. This led Barnes to suggest great caution in using Parten's data in a normative fashion.

Rubin et al., (1976) arrived at a different conclusion, however. They observed the free play behaviour of middle- and working-class preschool children and compared their data with those of Parten (1932) and Barnes (1971). Combining the data for three- and four-year-olds, in Parten's case, resulted in approximately 40 per cent of play being either associative or co-operative. For Barnes, on the other hand, only 25 per cent of play was either associative or co-operative. The authors suggest that this discrepancy may be due to differences in social class between the two subject pools. Their middle-class preschoolers engaged in associative and co-operative activities about 40 per cent of the time - a figure corroborating Parten's data - whereas working-class preschoolers engaged in associative and co-operative approximately 27 per cent of the time, thereby supporting Barnes' data.

Some support for the use of a social participation index comes from work by Smith and Connolly (1972) and Smith (1973). These studies used principal components

analyses, based on frequencies of observed behaviours, to find main dimensions of individual differences in children. In both cases, a dimension of 'social maturity' was found. Smith and Connolly (1972) found that this component was positively correlated with group play, negligibly correlated with parallel play and negatively correlated with solitary play. Smith (1973) found that a weighted social participation index showed a correlation of 0.81 with age and was highly loaded on the main social maturity component.

One area of controversy regarding Parten's view of social participation is her notion that social behaviour forms a hierarchy of social maturity. A number of studies have raised questions about such a hierarchy and have suggested a reinterpretation of the categories. For example, Moore et al., (1974) suggest that solitary play need not be an indicator of poor social adjustment. This view is based on the finding that much solitary play is occupied in goal-directed activities, large muscle play or educational play. Less than 16.5 per cent was classified as onlooking, sulking, or daydreaming. Rubin et al., (1976) found that a much higher proportion of solitary play (48 per cent) in preschool children was classified as onlooker or unoccupied. Nevertheless, the authors argue that parallel and not solitary play is the 'least mature level of a social-cognitive play hierarchy for three- and four-year-olds' (Rubin et al., op cit, p. 418).

The notion of a unidimensional classification of social participation has also been questioned by Roper and Hinde (1978). This study re-evaluated the use of principal components analysis to justify a social participation index. The authors found that whereas a principal components analysis gave a first component similar to that of Smith's (1973), a further rotated factor-analytic solution yielded a breakdown of this first component into three sub-factors. These were: a) how interactively children play with other children; b) how much they play on their own; and c) how much they are unoccupied. The first factor was not appreciably correlated with age whereas negative correlations with age were obtained for the second and third factors. These findings suggest that a linear social participation index with parallel play in an intermediate position is unlikely. However, they do not particularly support the views of Moore et al., (1974) and Rubin et al., (1976) that parallel play is less mature than solitary play.

Smith (1978) carried out a longitudinal study of social participation in order to determine whether children do in fact go through sequential stages of solitary, parallel and group behaviour. Children aged 28 to 48 months on entry into a playgroup were observed over nine months. The results showed that the behaviour of many children did not fit the patterns predicted by Parten. Smith (op cit) challenged the view of solitary play as a less mature form of social participation,

arguing instead that it might not always be a sign of immaturity. Moore et al., (1974) and likewise, Rubin et al,, (1976) suggested that solitary play and group play are not hierarchic categories but that most children participate in both types of play.

A second area of controversy concerning social participation is that of Parten's interpretation of parallel play. Smith (1978) pointed out that parallel activity is not an essential stage of social participation, and questioned the usefulness of a social participation index in which parallel is weighted intermediately between solitary and group. Such an index, he states, would be more representative of two-year-olds and younger three-year-olds but not of older three- and four-year-olds. Bakeman and Brownlee (1980) suggest that parallel play might best be viewed as a strategy that can be used occasionally, according to the demands of the situation. In their study, parallel play was the only significant precursor to group play and appeared to be used by children between two to five years to enter group play.

Whilst Parten's categories seem to be useful descriptors of children's behaviour within a group setting, there appears to be little justification for a linear index of social participation with respect to solitary and parallel play. Associative and co-operative play, on the other hand, would seem to require some degree of social skill. The approach taken in the present

study was to retain Parten's categories of social participation but without assuming that solitary and parallel play necessarily indicated immature social behaviour on the part of the child. The category unoccupied was coded as 'non-play' rather than as a form of social engagement.

Cognitive measures

Tizard, B. et al., (1976a) point out that any attempt ot measure the cognitive aspects of play in a wide variety of settings requires the use of criteria that could be applicable to behaviour as different as pouring water into a bottle and playing mothers and fathers. Duration of play episodes is one aspect of play that is easily and universally applicable. However, it has been shown to be variable within both age groups and individual children, depending on such factors as the type of materials used, the social setting and frequency of distractions (cf Bott, 1928; Lunzer, 1958; Tizard et al., op cit).

A general scale assessing the level of organisation of play activities was developed by Barker et al., (1941), in their investigation of the effects of frustration on the level of play. The authors argued that there is a developmental increase in both the number and heterogeneity of the elements comprising the play activity, as well as the extent to which these elements are integrated under one purpose. In the infant, play is characterised by repetitive movements which appear

aimless because they are not organised to an end. The older child, however, is capable of organising behaviour such that s/he can perform a simple task. Subsequently, a variety of activities can be integrated under a governing purpose, or even a hierarchy of purposes.

Lunzer (1958) also attempted to develop a scale measuring the cognitive level of play activities. A nine-point scale of 'adaptiveness in the use of materials taken in conjunction with the degree of articulation and coherence shown in the play unit as a whole' (p. 209) was constructed. The scale was based on concepts of the organisation of behaviour akin to those used by Barker et al., (op cit) and on Buhler's (1933) notion that during development, children proceed from using play material in non-specific ways to exploiting the specific properties of each material.

The work of Barker et al., (1941) and Lunzer (1958) has been further developed by Tizard, B. et al., (1976a). The authors assessed the complexity of play organisation according to the number of different activities linked in one game and the coherence with which they were organised.

> Play was defined as coherently organised if the activities appeared to occur in an ordered non-random sequence; play was considered not to be coherently organised if the activities in the game could have occurred in any spatial or temporal order and were apparently linked only by a common general theme.
>
> (Tizard et al, 1976a; p.254)

Attention was also paid to the child's use of materials. All play was categorised into one of four types: play with no materials, partial, 'appropriate' and symbolic use of materials (Tizard et al., op cit).

It is clear from the discussion so far that the complexity of the sequence of elements in play has been used by a number of authors to denote the cognitive level of activities (Barker et al., 1941; Lunzer, 1958; Tizard, B. et al., 1976a; Sylva et al., 1980). The elements of the play episode, however, have been defined in differing ways. Authors from an ethological perspective tend to adopt atomic, morphological units as the basis for a description of play episodes (e.g. Blurton-Jones, 1972; McGrew, 1972; Smith, 1972). Other researchers have preferred to use more molecular, functional units for their categorisation of behaviour (e.g. Tizard et al., op cit; Meadows and Cashdan, 1983).

Sylva et al., (1980) used the 'cognitive challenge' of an activity, a functional description, as well as differentiation of the play sequence to categorise the complexity of play. The following are characteristics of behaviour showing high cognitive challenge: novel, creative, productive; involves the combination of several elements, materials, actions or ideas; carried out in a systematic, planned or purposeful manner; structured and goal-directed; conducted with care and mental effort; learning a new skill or trying to improve already established skills. Despite these characteristics,

however, the authors point out that there was no all-encompassing definition of challenge that would fit every behavioural group. Each play activity was judged according to independent rules and definitions of simple and complex play were thus provided by example.

Much recent interest has focused on the study of symbolic play, though the terms used to refer to the associated behaviour patterns vary greatly. The importance of fantasy play for the development of social and cognitive skills has been emphasised by a number of authors (e.g. Piaget, 1951; Bruner, 1972; Singer, 1973). Smilansky's (1968) claim that training in sociodramatic activities helped develop cognitive, creative and social skills led to a great deal of research in this area. Much of the early work supported her claims (e.g. Saltz and Johnson, 1974; Rosen, 1974; Golomb and Cornelius, 1977). More recently, there is evidence that tutoring studies are effective not so much because of the role played by fantasy play but rather, due to the importance of adult tuition per se (Smith and Syddall, 1978; Smith et al., 1981).

The evidence supporting the notion that fantasy play is important in the development of social and cognitive skills is inconclusive. Whilst the degree of symbolism incorporated in the child's play has been used as an indicator of complexity (Tizard, B. et al., 1976a; Sylva et al., 1980), the view that the mere occurrence of an episode of pretend play is evidence that the play is

cognitively complex cannot be substantiated.

The approach adopted in the present study was to employ two observational schemes, on the basis that the cognitive level of activities would be best assessed by observing the use of materials in play as well as the complexity of the sequence of elements in play. Play episodes were described using functional units rather than the morphological elements used in the ethological approach.

CHAPTER FIVE: DESIGN AND METHODS

A. Design

The research compares two types of preschool provision: local authority day nurseries with teachers and nurseries without teachers. Children's behaviour and their involvement with staff, in each of the two settings, was examined in one study; a second study focused on staff speech to children.

Figure 1. Design of the research

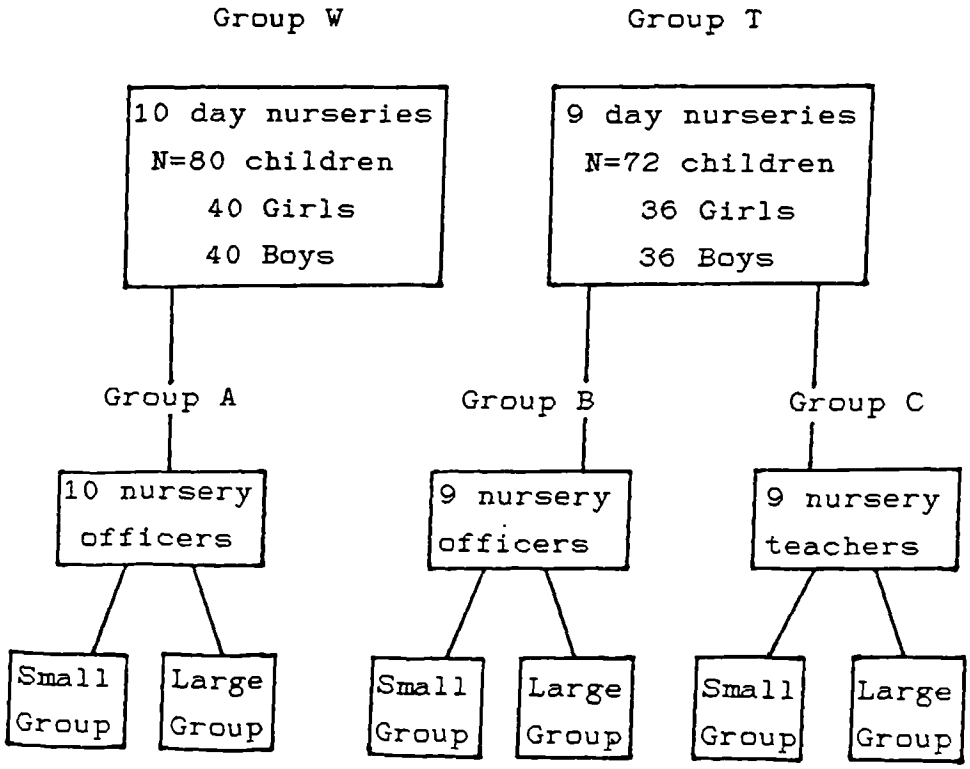


Figure 1 outlines the overall design of the research. Observations of children's behaviour were compared in two groups of Social Services day nurseries. Group T comprised 9 day nurseries with teachers and Group W, 10 day nurseries without teachers. Eight target children - 4 boys and 4 girls - were observed in each nursery. Total numbers were 80 children in Group W, 72 in Group T.

Staff speech to children was compared in three staff groups; these were formed from adults in the two Nursery Groups. Group A was composed of one nursery officer from each of the 10 day nurseries without teachers; Group B consisted of one nursery officer from each of the 9 day nurseries with teachers; and Group C comprised the 9 nursery teachers. Two audio-recordings were made for each adult: once with a Small Group and once with a Large Group of children.

B. The sample

There were three stages to defining the sample of target children for observation and the target members of staff. First, boroughs with a large number of day nurseries, in Greater London, were contacted for access to carry out the research. Second, nurseries that were similar to each other in terms of key organisational variables, were selected. The third stage involved the selection of two types of sample from each nursery: eight target children and a minimum of one target member of

staff. Each of these stages will be described in turn.

The boroughs

Access to social services day nurseries was requested from a total of eight Greater London boroughs. It was not known before applying, exactly how many of these had teachers working in their day nurseries. Applications were unsuccessful in four boroughs for the following reasons: nursery teachers did not work in the borough's day nurseries (3); the Social Services Department was being re-organised (2); the day nurseries had staffing difficulties (1). The day nurseries used in the project were drawn from four London boroughs. One of these was an Outer London borough; the other three were boroughs from Inner London.

The 1975 CHES survey of preschool provision found that social services day nurseries were generally sited in either 'poor' or 'average' urban areas and the children attending them, compared with those in other forms of preschool provision, were consistently more disadvantaged (Osborn et al, 1984). For this project, it did not prove possible to select boroughs on the basis of their similarity in terms of social disadvantage. However, boroughs were subsequently compared using the indicators of disadvantage shown in Table 1. The figures are taken from Austen et al, (1984).

Table 1. Indicators of social disadvantage (%) and number of day nurseries visited in each borough

	B1	B2	B3	B4
Total unemployed	9.1	9.9	9.6	11.3
16 to 19 unemployed	19.4	20.2	22.1	22.9
Lone parents	1.4	1.3	1.2	1.8
One+ person to each room	44.8	47.3	34.4	43.4
Nurseries visited	11	5	2	1
Nurseries with teacher	7	1	0	1

The majority of nurseries - 16 out of 19 - were in the boroughs 1 and 2. These boroughs were the most similar in terms of the above indicators. Eight of the 9 day nurseries with teachers were also in these boroughs. The comparison in Table 1 suggests that most of the nurseries in the sample were drawn from areas that did not differ greatly amongst each other in terms of social disadvantage.

Selection of nurseries

As discussed in Chapter Three (pp. 34-61), there is now a great deal of evidence to show that factors such as group size, staff-child ratio, age composition, social and spatial density, amount and type of equipment, all affect children's behaviour (Fein and Clarke-Stewart, 1973; Smith and Connolly, 1980; Neill, 1982). Attempting to match day nurseries in the sample for all the above variables would have been impractical. As a compromise, an attempt was made to match nurseries in Groups W and T on four key variables: group size, staff-child ratio, age composition and amount of space (see Table 2).

In the 19 nurseries overall, group sizes ranged from 10 to 32 and staff-child ratios from 1:5 to 1:10. Where there are two values in the column Group Size for one nursery, target children from different group rooms have been observed.

The age composition of nurseries was either one of family grouping or age grouping. In family-grouped nurseries, children were placed in groups of mixed age, approximately 18 months to 5 years, though the lower limit varied in different nurseries. Children in age grouped nurseries were placed in narrower age bands; 3- to 5-year-olds were in a separate group from younger children. All except two nurseries in the total sample were family grouped.

Table 2. Staff-child ratio, group size, age composition and structure/amount of space in each day nursery (D.)

D.	St-ch ratio	Group W Gp. size	Age comp.	Amnt. sp.	D.	St-ch ratio	Group T Gp. size	Age comp.	Amnt. sp.
6	1:5	10, 16	F	I	11	1:5	10	F	I
2	1:5	20	F	I	16	1:6	18	F	I
7	1:8	24	F	O	14	1:8	24	F	I
8	1:8	24	F	O	18	1:8	24	F	O
9	1:8	24, 30	F	O	19	1:8	24	F	O
5	1:8	24, 32	F	O	13	1:8	30	A	O
10	1:10	10	F	S	12	1:10	10	F	S
3	1:7	15	A	S	15	1:10	10	F	S
4	1:5	20	F	I	17	1:10	10	F	S
1	1:8	32	F	O					

F - grouping in mixed age bands
A - grouping according to age
O - large, open-plan rooms
I - closed, intermediate-sized rooms
S - small, closed rooms

A composite coding of structure and amount of space was used to describe the room in which the child spent most time. These were either large, open-plan rooms (O), closed rooms of intermediate size (I), or small, closed

rooms (S).

Seven pairs of nurseries were matched for staff-child ratio and group size; six of these were also matched for age composition. The structure and amount of space in the child's group room were similar in all matched pairs except nurseries 7 and 14. Three nurseries in Group W (nurseries 3, 4 and 1) and two in Group T (nurseries 15 and 17) were unmatched. Data analysis was not carried out in terms of matched pairs of nurseries; it was presumed that there was overall equivalence between the two groups of nurseries.

Three day nurseries were not included in the final sample. In each of these nurseries, it had not proved possible to find a nursery officer willing to take part in the speech recordings.

The target children

As Figure 1 illustrates (p. 73), a total of 152 children were observed in 19 day nurseries; 4 boys and 4 girls were selected from each. Seventy-two of the children were from the 9 day nurseries with teachers. The other 80 children were observed in the 10 day nurseries without teachers.

Children attending day nurseries in the boroughs used are selected on the basis of problems within the family and/or the parents' ability to cope with the child. Behavioural problems appeared to be present in many children, as noted during the pre-selection visits to nurseries. The degree of severity of any such problem

was a potential confounding factor affecting children's behaviour. Accordingly, the following criteria were used to exclude extreme cases: severe behavioural problems; severe speech problems; and attendance at the day nursery for less than a month.

The following procedure was used to select the target children. A list of 3-year-olds who had been in attendance at the nursery for at least one month was obtained from the Officer-in-Charge. Staff in the relevant group rooms were then asked which of these 3-year-olds showed severe behavioural or speech problems. Their judgements were used to decide which children should be excluded from study.

In general, the number of children available for selection was not much more than eight. Where there were fewer than eight 3-year-olds available, the age range was expanded to include either younger or older children. Children from different racial groups were represented, including white (U.K.), Afro-Caribbean, and Asian. Social class was not used as a variable for selection since it is dependent for its definition on the occupation of fathers. Such a definition was not always appropriate for the families of target children: some families were headed by mothers alone as opposed to mothers and fathers; where fathers were present, they were not always employed; the father was not always the main earner in the family.

Table 3 shows the range and mean age in months of

children in each nursery. All except 10 children were aged between 36 and 47 months (3 years and 3 years 11 months). In Group W, 4 children were younger than this, between 32 and 35 months, and one was older, 51 months. Five children in Group T were aged between 31 and 35 months; one was 48 months old. A sign test on the mean ages of children in the two nursery groups produced no significant differences (x=3, N=9). Equivalence in age among target children was therefore presumed.

Table 3. Age range and mean (in months) for children in the two Nursery Groups

Group W			Group T		
Nursery	Range	Mean	Nursery	Range	Mean
1	39-45	41.4	11	37-46	42.4
2	36-46	41.8	12	35-48	41.5
3	38-47	42.5	13	38-45	41.8
4	35-46	39.9	14	42-46	43.6
5	37-46	41.0	15	36-44	40.0
6	37-45	40.6	16	37-44	40.1
7	36-51	42.8	17	31-46	39.1
8	37-46	41.1	18	38-43	39.6
9	37-42	39.6	19	35-44	40.1
10	32-47	39.8			

The target members of staff

All target members of staff were qualified nursery nurses or teachers. The term Staff Position is used to refer to the adult belonging to one of the three staff groups A, B or C. Ten nursery officers, one from each of the day nurseries without teachers, were the members of Group A. Group B was composed of one nursery officer from each of the 9 day nurseries with teachers and the teachers themselves comprised Group C. Two recordings were made of each adult, once with a small group (up to 6) and once with a large group of (8 or more) children.

The nursery officers selected in Groups A and B each had responsibility for a group of children. Tizard, B. et al, (1972) have shown that the way in which adults speak to children is affected by their social framework and a particularly salient feature in their study was whether or not the adult was in charge of a group of children.

During preliminary visits to the day nurseries, the broad plan of the research, including the observational study of children's social and cognitive behaviour, was outlined to all nursery staff individually. Staff were told that the researcher was interested in conversations between adults and children, and would like to record one member of staff on two separate occasions, once with a small group of chidlren and once with a large group. Each recording session would last for 45 minutes and would involve the adult wearing a radio-microphone. It was explained that the use of the radio-microphone was

necessary in order to record accurately the speech of the children nearest the adult and her speech to them.

Each nursery teacher was asked directly if she would be willing to participate in the audio-recordings. All the teachers agreed to be recorded in this way.

During piloting, nursery officers had appeared to be more reluctant to be recorded using radio microphones. This was borne out in the study proper where, in three day nurseries, none of the staff were willing to participate in the recordings of speech. For the study as a whole, random selection of a nursery officer in charge of a group of children, in each nursery, did not seem feasible.

Nursery officers were therefore selected in the following way. Before describing the research to staff members, the Officer-in-Charge was asked which nursery officers she thought would be most willing to be recorded. The individual named was the first one to be asked directly by the researcher to take part in the audio-recording. If more than one individual was suggested, the choice of nursery officer whose participation would be requested, was made randomly.

Non-random sampling, in this case, of nursery officers, raises problems concerning the extent to which results obtained from the sample can be generalised to the population. Volunteer subjects have been shown to be more sociable and less authoritarian than non-volunteers (Rosenthal and Rosnow, 1969). The selection procedure

used here is likely to have resulted in a sample of nursery officers whose speech to children is *not* representative of nursery officers in general. The variability in the distributions of the total amount of speech for staff in Groups A, B and C are examined in Appendix 1.

Composition of groups of children in the audio-recordings

The adult involved in the audio-recording was asked to select, from the three- and four-year-olds present in the nursery that day, the children who would be present during the 45-minute session. The researcher asked for a specific number of children to be included; the numbers requested were four for the small group and eight for the large group. Actual group sizes ranged from eight to 15 children in the large group and from two to six in the small group, though in the latter case, only one recording was carried out with two children. Details of group compositions - number of children, age and sex distribution - are given below.

The number of children taking part in recordings is shown in Table 4. Given the length of the recording period (45 minutes), it was not possible to have tight control over the number of children in each session. The most frequent size for Small Groups was 4 in Groups A to C. Only one recording in Group A was carried out with two children; the rest were within the range 4 to 6. For Large Groups, the most frequent size in Groups A and C was 8; in Group B, it was 11. However, the means for

Table 4. Number of children in audio-recording sessions

	Group A	Group B	Group C
Small group			
Most freq.	4	4	4
Mean	4.2	4.8	4.6
Range	2-6	4-6	4-6
Large group			
Most freq.	8	11	8
Mean	9.6	10.4	9.8
Range	8-14	8-15	8-15

group sizes in both Small and Large groups are fairly close for all Staff Positions.

Table 5. Sex distribution of groups

	Group A		Group B		Group C	
	Small Gp.	Large Gp.	Small Gp.	Large Gp.	Small Gp.	Large Gp.
More girls than boys	5	3	4	4	5	2
Equal nos. of girls and boys	3	1	4	1	2	3
More boys than girls	2	6	1	4	2	4
Total no. of recordings	10	10	9	9	9	9

Table 5 shows the sex distribution in the large and small groups of children. In all three staff groups, there appears to be a tendency for more boys to be found in recordings with a large group of children.

Table 6. Age composition of groups

	Small Group		
	Group A	Group B	Group C
Mean:			
35-47 mo.	9	6	4
48-54 mo.	1	3	5
Range of age diff.	10-23	6-37	2-15

	Large Group		
Mean:			
30-47 mo.	7	8	7
48-51 mo.	3	1	2
Range of age diff.	6-32	7-45	7-29

The age compositions of groups are shown in Table 6. Most groups were made up of 3- and 4-year-olds. Three-year-olds seemed to be more often included in the large groups, regardless of Staff Position, and in the small groups, with nursery officers in Groups A and B. For each group recorded, the difference in age between the oldest and youngest children was calculated. The range of these

age differences, in months, is shown in Table 6. The degree of variation in age within a group of children, appears to be greatest for Group B.

C. The coding systems

The observational coding scheme

Children's behaviour was categorised using the following measures of social and cognitive abilities. Categories in each of the four sets of measures are mutually exclusive.

a) Social participation

Social abilities were coded using Parten's (1932) categories of social participation, except for the category of Unoccupied.

1) Onlooker
The child watches other people or their activities but is not socially involved with them.
2) Solitary
The child shares neither a common activity nor is involved in interaction with others.
3) Parallel
The child is engaged in a similar activity to those around him or her but makes no attempt to influence or modify their activity.
4) Associative
There is a common activity and attempts are made to influence each other's behaviour, for example by action, talking and so on.
5) Co-operative
The child plays in a group organised for the purpose of making some material product, attaining some competitive goal, dramatising situations or of playing formal games.

b) Absence of play

Three categories coded behaviour in which play was absent.

1) Nonplay
The child is engaged in activities such as listening

to an adult read a story, tidying up, waiting, eating, fighting.
2) Unoccupied
The child is not occupied in any activity.
3) Conversation
The child is engaged predominantly in conversation with others.

When any of these three categories were used to code behaviour, the measures of cognitive abilities were not used.

c) Use of materials

Two sets of measures were used to code cognitive abilities. The first deals with the use of materials and is adapted from Lunzer (1958) and Tizard, B. et al., (1976a).

1) Play with no materials
This includes rough and tumble play, nursery rhymes (unaccompanied by object play) and so on.
2) Indiscriminate use of material
The activities engaged in by the child are not specific to the material handled and have no observable constructive or symbolic character, for example, throwing or sucking blocks, tapping objects together.
3) Partial use of material
The activities are determined by external qualities of the material (e.g. similarity in form or size) and a number of pre-defined qualities directly related to obvious functions of the material. Examples are putting blocks in holes, piling up blocks without really building.
4) Appropriate use of material
The properties of the material are well exploited and there is no symbolic play. For example, if the material could be used to make a structure or pattern this was done; if the toy had wheels it was propelled.
5) Symbolic play
Play in which the child treats either objects or herself as 'other' than they are. Play with miniature replicas of objects, such as dolls or toy cars was not regarded as symbolic unless there was some evidence of fantasy beyond the appropriate use of toys. Thus, pushing a doll in a doll's pram would not be coded as symbolic play unless there was some further evidence that the doll was being regarded as a baby or that the child was pretending to be a

mother.

d) Complexity of operations

The second set of cognitive measures refers to complexity of operations (Meadows and Cashdan, 1983; Tizard, B. et al, 1976a).

1) Little or no integration
Behaviour is not coherently organised and the child achieves nothing definite, for example moves vehicle to and fro, shovels at sand aimlessly.
2) Integration at the level of routine behaviour
The child repeats one or two operations over and over, such as pats and digs; fills bucket with sand.
3) Integration at the level of task
The child carries out two or more operations in a necessary order, for example fills a bottle with sand by scooping sand and pouring it in; puts a doll in a cot and covers it with blankets.
4) Integration at the level of a theme
Co-ordination of level (2) or (3) operations around a super-ordinate theme. For example, the child engages in domestic play which involves putting children to bed, ironing clothes; the child makes a sand-castle from a series of sand pies.

e) Staff involvement

Staff involvement was coded using the following categories.

1) Staff care
The member of staff is involved in cuddling the child or in domestic care, for example, putting on overalls or coats, tying laces and so on.
2) Staff present
The member of staff is present but does not play an active role in the interaction. She may occasionally comment on the child's activity but does not tell the child what to do. Any activities with the child that the adult may be involved in are child-selected.
3) Staff structured
The member of staff plays an active role in the child's activity and determines what task the child is engaged in. Activities are staff-directed.

Reliabilities

Table 7 shows inter- and intra-observer reliabilities.

Table 7. Reliabilities for behavioural categories

Behavioural category	Inter-observer reliabilities		Intra-observer reliabilities	
	Number of agreements	Kappa	Number of agreements	Kappa
Onlooker	60	0.77	24	0.84
Solitary	42	0.78	17	0.91
Parallel	101	0.80	91	0.87
Associative	111	0.79	97	0.90
Co-operative	41	0.74	33	0.94
Nonplay	105	0.69	55	0.86
Unoccupied	41	0.68	12	0.79
Conversation	44	0.72	42	0.85
No materials	47	0.72	0	-
Indiscriminate	5	-	1	-
Partial	28	0.72	16	0.91
Appropriate	117	0.82	133	0.91
Symbolic	15	0.72	6	-
No integration	4	-	0	-
Routine	109	0.65	96	0.90
Task	100	0.80	29	0.91
Theme	15	0.75	28	0.94
Staff care	7	-	3	-
Staff present	83	0.80	60	0.98
Staff instructive	109	0.93	17	0.94

Reliabilities are not presented for categories with fewer than 10 agreements. Kappa values were satisfactory, ranging from 0.65 to 0.93 for inter-observer reliabil-

ities and from 0.79 to 0.98 for intra-observer reliabilities.

The coding of staff speech

Staff speech was coded using a revised version of the system devised by Wood et al, (1980). Six major speech activities are outlined - Management, Draws attention, Instruction, Pretend play, Conversation and Rapport. These are each subdivided to make thirty speech codes altogether. Coding is not mutually exclusive; more than one code may be used to describe an utterance.

The cognitive content of staff speech is contained in the activities Draws attention and Instruction. Non-cognitive activities are Management and Rapport. This definition is similar to that used by Tizard, B. et al, (1976c), where cognitive content was defined as the proportion of time in which staff were observed helping the child to learn non-disciplinary matters as opposed to supervising, disciplining, giving affection and physical care to the child, or cleaning and dealing with play equipment.

The activities and speech codes are described below.

Management (Working out what to do next)

1) Asks about intention
The adult asks the child what s/he would like to do next, offering a genuine choice. "Do you want to play with the see-saw next?"

2) Directs
The child is effectively told what to do next, even where the direction is phrased as a question. "Would you like to put your coat on Mark, it's cold outside." Directions may occur with or without explanations.

3) Prohibits
The adult stops the child from doing something. "No John, you'll hurt Peter." Like directions,

prohibitions may occur with or without explanations.

4) Negotiates
The adult moves what children are doing to another place or she delays what they want to do. "Wait until Jo's finished painting."

5) Indicates own intention
The adult tells the child what she herself is going to do. "I'm just going to the loo."

6) Provides services
The adult helps the child to do something preparatory to his or her own activity. "Shall I tie your apron, Janie?" Includes providing food or drink for the child, responding to a request for help by the child or giving permission for the child to carry out an activity.

Draws attention

7) Marks action
The adult draws the child's attention to effects or consequences of his or her actions. "If you lean on Darren, he'll fall over."

8) Draws attention to self
The adult draws the child's attention to herself. "Karen, you're hurting me." Includes the use of the child's name on its own.

9) Describes/highlights environment - people, events, objects
The adult draws the child's attention to people, events or objects to which s/he should attend. "It's raining outside."

10) Asks for description
The adult asks the child to name or comment upon people, events or objects in the immediate context. "What colour is that piece, Anne?"

Instruction

11) Instructs
The adult tells the child how to do something. "Why don't you turn that one over?"

12) Assists act
The adult actually helps the child to bring off something s/he is trying to do. "If we just make a hole in there ... and then push this through, there!"

13) Demonstrates
The adult actually shows the child how to do something. "Watch, first you have to put this one, and then that fits."

14) Evaluates
The adult passes some comment on the status of what the child has just done/made or said. "That looks lovely, Amina."

15) Asks for evaluation
The adult asks the child to evaluate his or her own product. "Do you think that looks quite right, Steven?"

Pretend play

16) Asks for description of pretend play

The adult asks the child to comment on people, events or objects in pretend play. "Are you the doctor, Marcus?"

17) Describes/highlights pretend play - people, events or objects

The adult draws the child's attention to people, events or objects involved in pretend play. "They're going to the seaside."

18) Elaborates pretend play

The adult extends the child's play theme. "Oh, and you're the big wolf - come to eat me up."

19) Articulates rules of pretend play

"Oh, we need knives and forks if we're going to have dinner."

20) Allocates roles

"You be the policeman, Jamie."

Conversation

21) Asks for information

The adult asks the child a question about events not ongoing. Includes people and objects not present in the immediate context. "What did you do at the seaside, Peter?"

22) Gives information

The adult tells the child something about events not ongoing. Includes people and objects not present in the immediate context. "We had the photographer in last week."

23) Asks for causal explanation

The adult goes beyond the appearance of things to talk about 'why'. "Why do you think those big cars won't fit in there?"

24) Gives causal explanation

"That won't make a noise because you didn't wind it up yet."

25) Talks about reasons for other's actions

The adult talks about why people act as they do. "Mummy will be very upset because she left her keys."

Rapport

26) Agrees with child

"Yes, that is the one we had last week."

27) Disagrees with child

"No, today is Thursday not Wednesday."

28) Repeats what the child has just said

Verbatim or paraphrased repetition. "Oh, mummy went to the hairdresser?"

29) Monitors

The adult makes some comment or utterance that acknowledges what the child has said or done but does not add anything. "Lovely."

30) Social oil

The adult makes a comment or utterance that maintains conversation. "There you are." Includes greetings, farewells and polite forms of speech such as please, thank you.

Reliabilities

Table 8. Reliabilities for speech codes

	Inter-coder reliabilities		Intra-coder reliabilities	
	Number of agreements	Kappa	Number of agreements	Kappa
Asks about intention	25	0.85	16	0.86
Directs	93	0.82	56	0.86
Prohibits	29	0.82	27	0.95
Negotiates	34	0.75	25	0.84
Indicates own intention	17	0.82	4	-
Provides services	22	0.66	30	0.66
Marks action	9	-	12	0.96
Draws attention to self	27	0.72	43	0.75
Describes environment	70	0.71	55	0.84
Asks for description	80	0.81	54	0.93
Instructs	18	0.83	13	0.84
Assists act	4	-	1	-
Demonstrates	6	-	13	0.86
Evaluates	24	0.78	46	0.89
Asks for evaluation	0	-	0	-
Asks for description of pretend play	34	0.91	23	0.84
Describes pretend play	45	0.66	26	0.92
Elaborates pretend play	12	0.82	23	0.81
Articulates rules of pretend play	1	-	7	-
Allocates roles	2	-	0	-
Asks for information	29	0.79	25	0.80
Gives information	58	0.74	32	0.88
Asks for causal explanation	7	-	5	-
Gives causal explanation	32	0.85	6	-
Talks about reasons for actions	0	-	2	-
Agrees with child	17	0.76	12	0.79
Disagrees with child	5	-	12	0.96
Repeats what child has said	25	0.69	58	0.91
Monitors	43	0.72	32	0.81
Social oil	20	0.67	54	0.76

Table 8 shows reliability estimates for speech codes. Kappa values were satisfactory, ranging from 0.66 to 0.91 for inter-coder reliabilities, and from 0.66 to 0.96 for intra-coder reliabilities. No reliability estimates were calculated for categories with fewer than 10 agreements.

Unanalysed speech

Four codes were used to code speech that was not included in any analyses. These were: a) songs and nursery rhymes; b) reading aloud; c) uncodable utterances; d) inaudible speech.

D. Procedure

The observational categories of children's behaviour and the method of recording staff speech were tested in a pilot study carried out at a children's centre in Milton Keynes and a day nursery in North London. Piloting was carried out over a period of about three weeks. Neither of these centres was used in the study proper.

For the main study, the first two days (morning and afternoon) in each nursery were spent in habituation so that children and staff could become used to the observer's presence. Data collected during this time were not used in the project. Subsequently, observational data were collected during the morning as well as the afternoon over a period of approximately ten days in each day nursery. Audio-recordings of staff and children were also made during this time. Data were not collected

during mealtimes.

The observational method

Observational sessions were about an hour and a half long in the morning and, depending on the nursery routine, an hour to two hours long in the afternoon. Each hour of observation was followed by a short break, to prevent observer fatigue.

The method used was 30-second time sampling of the behaviour of a target (or focal) child. Focal child sampling provides relatively unbiased data relevant to questions about spontaneous social behaviour in groups (Altmann, 1974). A random choice of target child, using random numbers, was made from the target children present at the nursery. Observation of each target child was preceded by a run-in period of 1 minute in order to determine the behavioural context. When necessary, the observer would follow the target child during observation to keep him or her in sight. A narrative record was made of the child's activities after each 30-second sample; on-the-spot coding did not seem feasible for categories in Complexity of operations. The narrative records were coded as soon as possible afterwards, using predetermined categories.

Eighty time-samples were collected altogether for each child in two separate sessions. These were carried out on different days; 40 time-samples were collected in each. Two relatively long observational periods were chosen rather than shorter, more frequent sessions, to

allow enough time for the occurrence of behaviour involving complex operations. A total of 6400 samples were collected from 80 children in the 10 day nurseries with teachers; 5760 time samples in all were obtained from 72 children in the remaining 9 nurseries.

Wherever possible, one morning and one afternoon observation session was made for each child except for those children who attended half days only. All observations were made indoors with the exception of one nursery where data were collected during the summer and children spent most of the time outdoors.

The audio-recordings

Each individual in the three staff groups, Groups A to C, was recorded on two separate occasions, once with a large group (8 or more children) and once with a small group (up to 6 children). Recording sessions were 45 minutes long. Altogether, 56 audio-recordings were made of 28 members of staff. For all teachers and nursery officers involved, it was stressed that the recording was not a 'test' of the adult's verbal abilities but that the researcher's interest was in conversations between adults and children.

A quasi-experimental design was used, with Staff Position and Group Size as the two 'crossed' factors. Whilst these two factors were of primary interest, it was desirable that the circumstances in which recordings were made were as close to naturally occurring conditions as possible. Staff were asked, as far as possible, to go

about their business during the recording as normal and were free to choose the activities or toys available for children. (Appendix 2 outlines these for each recording). Large group sessions were similar to normal nursery practice at certain times of the day, such as after lunch, for most day nurseries. Small group sessions were less often part of a nursery's daily routine.

During each recording session, the adult wore a radio-microphone and a transmitter which was held in the pouch of a belt worn under her clothing. The speech transmitted from the radio microphone was picked up by a receiver and recorded by a National Panasonic RQ-J6 mini stereo cassette recorder. Both the receiver and cassette recorder were placed inside a canvas bag out of the reach of the children so as not to attract their attention.

To ensure familiarity with the radio-microphone and the recording procedure prior to any recordings, each target member of staff took part in two habituation sessions. During each of these, the radio-microphone and belt were worn for about an hour in the morning. No recording took place but the procedure was the same as that followed during audio-recording sessions.

All speech recordings were made after the first week of observational data collection, to allow sufficient time for target members of staff to become accustomed to the observer's presence. The observer was present during each recording session in order to make notes on the context of conversations, such as who was being spoken to

and the activities engaged in.

The procedure for selecting children who would take part in recording sessions was outlined earlier (p. 84). Staff involved in audio-recordings were asked to select a specific number of children (four for the small group; eight for the large group) from the three- and four-year-olds present in the nursery that day.

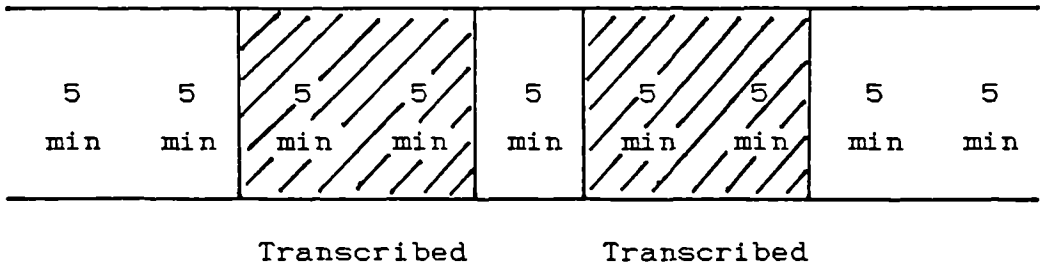
As far as possible, recordings were made in rooms that were ordinarily used by the staff and children of that particular nursery. Recordings with a Small Group of children generally took place outside the group room, for example in the staffroom, or a 'quiet' room. Large Groups were recorded either in the group room when other children and staff were outdoors, or in an open play area. Other adults were not present during these sessions, except fleetingly. For example, parents arriving at the nursery were sometimes briefly present during recordings.

The order of the two recordings was randomised for each adult. Wherever possible, the same time of day (morning or afternoon) was chosen for the two recordings. It was not feasible to do this in all cases due to constraints on the availability of staff. The number of cases in which both recordings were not made at the same time of day, was 3 for Group A, 1 for Group B and 5 for Group C.

A sample of 20 minutes was transcribed from each 45-minute audio-recording. One 10-minute segment was

selected from each half of the tape (see Figure 2). This method was chosen so that the first and last 10-minute periods could be avoided. Any initial inhibition or discomfort on the adult's part during the first 10-minute period may have resulted in 'artificial' speech, whereas fatigue, on the part of children or the adult, may have become evident during the last 10-minute period. Two 10-minute segments, as opposed to more frequent shorter segments, were chosen for the sake of continuity of speech.

Figure 2. Sampling of each 45-minute audio-recording



Each 20-minute speech sample was transcribed with the aid of the observer's notes on the context of conversations. The adult's speech was divided into utterances, defined as speech phrases marked off by pauses or changes in inflection, and coded using categories adapted from Wood et al, (1980). Each transcript was coded in conjunction with the relevant audio-recording.

Reliabilities

Reliabilities were calculated using kappa (Cohen, 1960), a measure which takes into account chance expected agreements. It is therefore a more conservative estimate of observer variability than that calculated from the expression agreements/agreements + disagreements. Kappas between the range 0.61 and 0.80 indicate substantial agreement (Landis and Koch, 1977).

a) Inter-observer reliabilities - observations

Two independent observers were involved in the reliability study for the observational categories of children's behaviour. The study was carried out in a playgroup. Gaining access to an additional day nursery conveniently situated for both observers proved difficult. Inter-observer reliabilities (k_1) were determined by observations from the two independent observers on the same children in the playgroup.

Data were collected from ten observational sessions, of about two to two and a half hours length each. The study was carried out over a period of three weeks. This period included two initial sessions which were used for habituation. The behaviour of target children randomly selected from those present at the playgroup, was time-sampled over 30 second intervals. Narrative notes were made of the child's activities and coded as soon as possible after the observational session.

b) Intra-observer reliabilities - observations

A two and three quarters hours video-recording of children's behaviour, made at a preschool centre in a University Psychology Department, was used to calculate intra-observer reliabilities (k_2). The codes for 30-second time-samples of behaviour were compared with re-coding of the same samples after a year's interval. Kappa values for k_2 estimate the extent to which the researcher's coding of children's behaviour was stable.

c) Inter-coder reliabilities - staff speech

Inter-coder reliabilities (k_1) were determined by comparing the codings from two independent coders on the same transcripts. Four transcripts were used, in conjunction with the audio-tapes.

d) Intra-coder relaibilities - staff speech

Intra-coder reliabilities (k_2) were determined by comparing codes for the same transcripts re-coded by the researcher after a 9-month interval. Values for k_2 indicate the degree of stability in the coding of staff speech.

E. Analysis

Analysis of observational categories

a) The influence of Nursery Group, Staff involvement, Child's sex and Venue on children's behaviour

Multiple regression analysis was used to assess the relative influence of a number of independent variables on individual behavioural codes. The overall dependence

of behavioural categories on the predictor variables was also assessed. Categories of child behaviour were regressed against five potential predictor variables: Nursery Group, Staff present, Staff structured, Child's sex and Venue. In addition to the regression analyses carried out on the sample as a whole, split-half analysis was conducted on the data from each Nursery Group. Categorical predictor variables, such as Nursery Group and Child's sex, were handled by the use of dummy variables (Girls - 1; Group T - 1). Analyses were carried out using the Statistical Package for the Social Sciences (SPSS9).

Overall accuracy of the regression equation is reflected by R^2, the proportion of variance explained by the variables included in the equation. An R^2 of 0.5 indicates that 50% of the observed variance is explained by the regression of the predictor variables on the dependent variable.

The standardized regression coefficent, Beta, is a measure of the influence of a predictor variable upon the dependent variable when all other independent variables in the equation are held constant. The direction of the relationship, whether positive or negative, is indicated by the sign of Beta. The absolute value of Beta represents the expected change in the dependent variable with a change of one unit in the predictor variable, once all other predictor variables are held constant or are otherwise controlled.

The strategy used to test which variables should be included in the regression equation was the standard regression method. For this approach, each variable is treated as if it had been added to the regression equation in a separate step after all other variables have been included. The increment in R^2 due to the addition of a given variable is regarded as the component of variation attributable to that variable.

The standard regression method was chosen rather than the hierarchical method, where variables are added to the regression equation in an order predetermined by the researcher. The reason for this choice was because there appeared to be no intrinsic order to the relationships among Nursery Group, Staff involvement, Child's sex and Venue. Any correlations among these variables would not be interpreted as having a direct, causal effect on the child's behaviour.

Independent variables were entered into the regression equation only if the probability of making a significant contribution to the explained variance was less than 0.05. Order of inclusion was determined by the respective contribution of each variable to the explained variance. The variable that explained the greatest amount of variance unexplained by variables already in the equation, was entered at the next step,

Regression analyses were not carried out on Indiscriminate or No integration, nor was Staff care included as a potential predictor variable. Inter-

observer reliability estimates were not obtained for these codes.

b) Children's behaviour during staff involvement

Chi-square tests were carried out on the frequencies of behavioural categories for girls and boys within each group of nurseries, during Staff present as well as Staff structured. Comparisons were also made of the combined frequencies (for girls and boys) in each Nursery Group. Staff care was excluded from these analyses since it lacked an inter-observer reliability estimate. These analyses examined the extent to which Social participation, Absence of play, Use of materials and Complexity of operations occurred equally for girls and boys during Staff involvement.

Analysis of staff speech codes

a) Effects of Staff Position and Group Size

The effects of Staff Position and Group Size on individual speech codes were examined using two-way nonparametric analysis of variance (Bradley, 1968). Analyses were carried out on means for the total number of utterances and on the mean percentage scores for individual speech codes. Of the thirty speech codes, twenty-six were analysed in this way. The four categories Assists act, Asks for evaluation, Articulates rules of pretend play and Allocates roles were not analysed due to the scarcity of utterances obtained in each case.

b) Relative use of staff speech codes in each group size

The extent to which individual speech functions were used *more* or *less* often than others was examined for each combination of Staff Position and Group Size. Rank orderings of speech functions were compared using Kendall's Test of Concordance. A split-half analysis was carried out on the rankings of speech functions in the Small Group; the first and second 10-minute recording segments were compared for each Staff Position.

CHAPTER SIX: RESULTS - FACTORS INFLUENCING CHILDREN'S SOCIAL AND COGNITIVE BEHAVIOUR

This chapter examines the influence of a teacher's presence in the nursery, and other factors, on children's social and cognitive behaviour. The results are presented as follows: (a) the influence of Nursery Group, Staff involvement, Child's sex and Venue on children's behaviour; (b) split half analysis of the data from each Nursery Group; and (c) a summary of the significant predictor variables for each dependent variable, from the analyses of the sample as a whole.

A. The influence of Nursery Group, Staff involvement, Child's sex and Venue on children's behaviour

The aim of the analyses is to ascertain whether the behaviour of 3-year-olds in day nurseries with teachers, differs from that of 3-year-olds in nurseries without teachers. It was hypothesised that the more complex cognitive operations (i.e. categories Task and Theme) would be more often observed in the children from day nurseries with teachers.

Multiple regression analysis was used to assess the overall dependence of individual behaviour categories on a set of independent variables. Categories of child behaviour were regressed against five potential predictor variables: Nursery Group, Staff present, Staff structured, Child's sex and Venue. (Regression equations for

dependent variables with significant predictor variables are shown in Appendix 3). Correlations among independent variables are presented first, followed by the results of regressions on categories in Social participation, Absence of play, Use of materials and Complexity of operations.

Correlations among independent variables

The use of multiple regression as a statistical technique requires that the set of independent variables against which dependent variables are regressed, is not highly intercorrelated. When some or all of the independent variables are very highly intercorrelated, a situation known as multicollinearity, this can cause a number of problems. For example, it is then difficult to evaluate the relative importance of individual independent variables and estimates of the regression coefficients from different samples may fluctuate considerably.

Correlations among the categories entered as predictor variables, for each Nursery Group, are shown in Table 1. We can see that there are two sets of significant correlations among the independent variables, both in Group W: (1) Staff present and Child's sex; and (2) Staff structured and Venue. As the actual values of these correlations are moderate rather than high (-0.31 and -0.25, respectively), it was judged appropriate to use all categories - Staff present, Staff structured, Child's sex and Venue - as independent variables in the multiple

Table 1. Correlations among categories entered as predictor variables, for each Nursery Group

	Group W (N=80)	Group T (N=72)
Staff present	Child's sex	Child's sex
rho	-0.31	0.11
p	0.005	NS
	Venue	Venue
rho	-0.03	-0.07
p	NS	NS
Staff structured	Child's sex	Child's sex
rho	0.02	0.10
p	NS	NS
	Venue	Venue
rho	-0.25	-0.14
p	0.05	NS
	Staff present	Staff present
C	-0.17	-0.15
p	NS	NS

regression analysis.

For each of the four sets of behavioural measures - Social participation, Absence of play, Use of materials and Complexity of operations - the means for individual categories will be presented first, followed by the results of the multiple regression analyses.

Social participation

Table 2. Mean percentage scores and mean number of samples (in brackets) for categories in Social participation

Group W	Girls (n=40)	Boys (n=40)	Total (N=80)
Onlooker	**10.35**	**7.94**	**9.14**
	(8.28)	(6.35)	(7.31)
Solitary	**17.56**	**14.98**	**16.27**
	(14.05)	(11.98)	(13.01)
Parallel	**15.75**	**16.56**	**16.16**
	(12.60)	(13.25)	(12.93)
Associative	**45.63**	**45.69**	**45.66**
	(36.50)	(36.55)	(36.53)
Co-operative	**10.73**	**14.85**	**12.78**
	(8.58)	(11.88)	(10.23)

Group T	Girls (n=36)	Boys (n=36)	Total (N=72)
Onlooker	**9.61**	**7.78**	**8.70**
	(7.69)	(6.22)	(6.96)
Solitary	**18.13**	**16.78**	**17.45**
	(14.50)	(13.42)	(13.96)
Parallel	**12.81**	**16.33**	**14.57**
	(10.25)	(13.06)	(11.65)
Associative	**48.05**	**49.03**	**48.54**
	(38.44)	(39.22)	(38.83)
Co-operative	**11.39**	**10.10**	**10.75**
	(9.11)	(8.08)	(8.60)

The mean percentages and mean number of samples for categories in Social participation are presented in Table 2. Associative is the most frequently occurring code for Girls and Boys, in both groups of day nurseries. The range of mean percentages is from 45.63% (Girls in Group W) to 49.03% (Boys in Group T). The mean number of samples in these two groups, respectively, are 36.5 and 39.22. Solitary and Parallel show the next highest means; both are much lower than the value for Associative.

In day nurseries without teachers, the mean percentage for Onlooker in Boys is somewhat lower than that for Girls - 7.94% compared to 10.35% - whereas the converse is true for Co-operative. Boys in Group T, however, have a lower mean percentage score than Girls for both Onlooker (7.78% and 9.61% for Boys and Girls respectively) and Co-operative (10.01% for Boys compared to 11.39% for Girls).

Solitary appears to be more prevalent in Girls compared to Boys, in both Nursery Groups. Mean percentages in Group W are 17.56% for Girls, 14.98% for Boys. In Group T, mean percentages for Solitary are 18.13% for Girls and 16.78% for Boys. Parallel, in contrast, was observed in roughly equal proportions for both sexes in Group W. However, Boys in Group T appear to be engaged more often in Parallel than Girls. Mean percentages are 16.33% and 12.81%, in turn.

Predictor variables for the regressions on categories in Social participation are shown in Table 3.

None of the independent variables were significantly associated with Onlooker.

Staff structured and Staff present are both negatively associated with Solitary. Individual children, on their own, were rarely engaged with adults for long periods. This effect was more notable in the case of Staff structured, where the Beta was -0.37 compared to -0.19 for Staff present. The overall contribution of both predictor variables is relatively minor however, as can be seen from the R^2 value of 0.15.

Staff present and Staff structured are also negatively associated with Co-operative; Staff present is a stronger negative influence on this dependent variable than Staff structured. Children were less likely to be engaged in Co-operative when staff were present. The overall R^2 of 0.1 demonstrates that the predictor variables play a limited role in explaining the total amount of variance for Co-operative.

A positive association for Parallel was found with the predictor variables Staff structured and Venue. The overall R^2 is fairly high - 41% of the variance for Parallel is explained by these two independent variables. Staff structured plays a particularly notable role here, as indicated by the size of the Beta (0.62). It is likely that the associations between Parallel, Staff structured and Venue are related to the occurrence of instructional activities with a group of children. Such activities were often observed in some nurseries.

Table 3. Predictor variables for categories in Social participation

	Predictor variable	Beta	R^2	F
Onlooker	-	-	-	-
Solitary	Staff structured	-0.37	0.12	19.68*** (df 1,150)
	Staff present	-0.19	0.15	13.31*** (df 2,149)
	(Change in R^2 = 0.04)			
Parallel	Staff structured	0.62	0.39	96.95*** (df 1,150)
	Venue	-0.13	0.41	51.41*** (df 2,149)
	(Change in R^2 = 0.02)			
Associative	Staff present	0.27	0.08	12.47* (df 1,150)
	Venue	0.16	0.10	8.35** (df 2,149)
	(Change in R^2 = 0.02)			
Co-operative	Staff present	-0.30	0.08	12.32* (df 1,150)
	Staff structured	-0.16	0.10	8.48** (df 2,149)
	(Change in R^2 = 0.03)			

* - $p<0.001$
** - $p<0.0005$
*** - $p<0.0001$

Staff present and Venue showed a positive relationship with Associative. The overall R^2 was quite small (0.1), indicating that Associative is not strongly dependent on these two predictor variables. Staff present has a stronger influence on Associative than Venue, as judged by the relative sizes of the Betas (0.27 and 0.16 respectively). Children were more likely to be engaged in Associative when staff were present but individual nurseries differed in the extent to which this occurred.

Absence of play

Table 4 presents the mean percentage scores and mean number of samples for categories in Absence of play. Nonplay shows the highest mean in both Nursery Groups, except for Boys in day nurseries without teachers. Mean percentages are in the range 16.13% (Boys in Group W) to 27.91% (Boys in Group T); the mean number of samples for these two groups ranges from 12.9 to 22.33. Children in Group T show higher overall means for Nonplay than those in Group W - 26.91% compared to 18.09% respectively.

Girls appear to be more often Unoccupied than Boys in Group W, and to a lesser extent in Group T. Mean percentage scores for Girls and Boys in turn, are 12.85% and 9.79% in Group W; 13.93% and 11.49% in Group T. Both sexes in each Nursery Group seem to engage about equally in Conversation. In Group W, mean percentages are 14.19% for Girls and 16.38% for Boys. Similarly in Group T, mean percentages for Girls and Boys respectively, are 14.73% and 15.31%.

Table 4. Mean percentage scores and mean number of samples (in brackets) for categories in Absence of play

Group W	Girls (n=40)	Boys (n=40)	Total (n=80)
Nonplay	20.06	16.13	18.09
	(16.05)	(12.90)	(14.48)
Unoccupied	12.85	9.79	11.31
	(10.28)	(7.83)	(9.05)
Conversation	14.19	16.38	15.28
	(11.35)	(13.10)	(12.23)
Group T	**Girls (n=36)**	**Boys (n=36)**	**Total (n=72)**
Nonplay	25.90	27.91	26.91
	(20.72)	(22.33)	(21.53)
Unoccupied	13.93	11.49	12.71
	(11.14)	(9.19)	(10.17)
Conversation	14.73	15.31	15.02
	(11.78)	(12.25)	(12.01)

Predictor variables for categories in Absence of play are presented in Table 5. Nonplay is the only dependent variable for which significant independent variables were obtained. Nursery Group is significant here; more Nonplay was found in day nurseries with teachers than in Group W (see Table 4). Staff structured

Table 5. Predictor variables for categories in Absence of play

	Predictor variable	Beta	R^2	F
Nonplay	Nursery	-0.41	0.19	35.85***
	Group			(df 1,150)
	Staff	0.38	0.34	37.65***
	structured			(df 2,149)
	(Change in R^2 = 0.14)			
Unoccupied	-	-	-	-
Conversation	-	-	-	-

*** - $p<0.0001$

was also a significant predictor variable. Betas for the two independent variables are relatively high (-0.41 and 0.38), indicating that Nursery Group and Staff structured are notable influences on the occurrence of Nonplay. The overall R^2 of 0.34 demonstrates that about a third of the variance for Nonplay is explained by Nursery Group and Staff structured.

Use of materials

The mean percentage scores and mean number of samples for categories in Use of materials are shown in

Table 6. Mean percentage scores and mean number of samples (in brackets) for categories in Use of materials

Group W	Girls (n=40)	Boys (n=40)	Total (N=80)
No materials	5.73	6.19	5.95
	(4.58)	(4.95)	(4.76)
Indiscriminate	0.91	1.50	1.20
	(0.73)	(1.20)	(0.96)
Partial	2.56	3.16	2.86
	(2.05)	(2.53)	(2.29)
Appropriate	34.91	33.91	34.41
	(27.93)	(27.13)	(27.53)
Symbolic	8.81	12.98	10.89
	(7.05)	(10.38)	(8.71)

Group T	Girls (n=36)	Boys (n=36)	Total (N=72)
No materials	5.21	5.73	5.47
	(4.17)	(4.58)	(4.38)
Indiscriminate	0.55	0.90	0.73
	(0.44)	(0.72)	(0.58)
Partial	1.04	1.60	1.32
	(0.83)	(1.28)	(1.06)
Appropriate	29.76	29.69	29.72
	(23.81)	(23.75)	(23.78)
Symbolic	8.89	7.36	8.13
	(7.11)	(5.89)	(6.50)

Table 6. In both groups of day nurseries, the highest means by far are those for Appropriate. Mean numbers of samples for Girls and Boys within each Nursery Group are very close: 27.93 and 27.13 respectively, in Group W; 23.81 and 23.75, in Group T. The overall mean percentage for children in Group W (34.41%) is higher than that in day nurseries with teachers (29.72%).

Symbolic and No materials are the categories with the next highest means in both Nursery Groups. Boys in day nurseries without teachers appear to have a higher mean percentage for Symbolic (12.98%) than either Girls in the same Nursery Group (8.81%) or children in day nurseries with teachers (8.89% and 7.36% for Girls and Boys, in turn).

Indiscriminate was rarely observed in either group of nurseries. The overall mean number of samples was 0.96 in Group W and 0.58 in Group T. Another code that did not often occur amongst Use of materials categories was Partial. Its occurrence seems to be more common in Group W - the overall mean number of samples here was 2.29 compared to 1.06 in day nurseries with teachers.

Table 7 shows the predictor variables obtained from regressions on categories in Use of materials. Multiple regression was not carried out on the code Indiscriminate as it lacked an inter-observer reliability estimate. Staff involvement was negatively associated with codes in this set of measures, except for No materials.

Regression on the dependent variable Appropriate

Table 7. Predictor variables for categories in Use of materials

	Predictor variable	Beta	R^2	F
No materials	Staff structured	0.54	0.29	61.44*** (df 1,150)
Partial	Venue	-0.35	0.12	20.79*** (df 1,150)
	Staff structured	-0.20	0.16	14.20*** (df 2,149)
	(Change in R^2 = 0.04)			
Appropriate	Staff structured	-0.48	0.23	46.05*** (df 1,150)
Symbolic	Staff present	-0.29	0.07	11.70* (df 1,150)
	Staff structured	-0.18	0.11	9.14** (df 2,149)
	(Change in R^2 = 0.04)			
	Nursery Group	0.15	0.13	7.56*** (df 3,148)
	(Change in R^2 = 0.02)			

* - p<0.001
** - p<0.0005
*** - p<0.0001

produced a Beta of -0.48 for Staff structured, indicating that Appropriate was less likely to occur during this form of involvement. The size of the Beta shows that Staff structured has quite a strong influence on the dependent variable. Staff structured also explains nearly a quarter of the variance for Appropriate, as demonstrated by the R^2 of 0.23.

Negative associations with Symbolic were found for both Staff present and Staff structured. Staff present is of greater influence here; Betas for the two predictor variables are -0.29 and -0.18 respectively. Nursery Group was also a significant predictor variable, with a Beta of 0.15. The result indicates that children in both Nursery Groups were less likely to engage in Symbolic play during Staff structured and Staff present; however, children in nurseries without teachers were more often involved in this type of play than children in Group T (see Table 6). It should be noted that the overall contribution of the three predictor variables to the variance for Symbolic is quite small, as can be seen from the R^2 of 0.13.

Significant predictor variables for Partial are Venue and Staff structured. Both were negatively associated with the dependent variable, showing that Partial was less likely to occur in some nurseries than others and also less likely to occur during Staff structured. The size of the Betas (-0.35 and -0.2 for Venue and Staff structured, respectively) demonstrates that the predictor variables have a moderate influence on

Partial. However, the overall R^2 of 0.16 shows that the combined role of Venue and Staff structured in explaining the variance of Partial, is limited.

No materials was the only code in this set of measures to be positively associated with a category of Staff involvement, in this case Staff structured. Children were more likely to be engaged in No materials during Staff structured. Twenty nine percent of the variance for the dependent variable is explained by this form of staff involvement, as indicated by the R^2 of 0.29. The value of 0.54 for Beta shows that Staff structured has a relatively strong influence on the occurrence of No materials.

Complexity of operations

The mean percentage scores and mean number of samples for categories in Complexity of operations are shown in Table 8. The highest means in both groups of nurseries are found for Routine: Group W has an overall mean percentage score of 30.97% and the corresponding score in Group T is 31.49%. Observations of No integration were rare in both Nursery Groups. For this category, the mean number of samples overall was 0.68 for Group W, and 0.01 for Group T.

Task shows the second-highest means in both Nursery Groups and appears to be more prevalent in Group W. The overall mean percentage here is 20.95% whereas it is 13.19% in day nurseries with teachers. For Theme too, the total mean percentage seems to be higher in day nurseries

Table 8. Mean percentage scores and mean number of samples (in brackets) for categories in Complexity of operations

Group W	Girls (n=40)	Boys (n=40)	Total (N=80)
No integration	0.63	1.06	0.84
	(0.50)	(0.85)	(0.68)
Routine	29.91	32.04	30.97
	(23.93)	(25.63)	(24.78)
Task	20.16	21.75	20.95
	(16.13)	(17.40)	(16.76)
Theme	2.23	2.88	2.55
	(1.78)	(2.30)	(2.04)
Group T	**Girls (n=36)**	**Boys (n=36)**	**Total (N=72)**
No integration	0.00	0.04	0.02
	(0.00)	(0.03)	(0.01)
Routine	29.41	33.58	31.49
	(23.53)	(26.86)	(25.19)
Task	14.79	11.60	13.19
	(11.83)	(9.28)	(10.56)
Theme	1.25	0.08	0.66
	(1.00)	(0.06)	(0.53)

without teachers - 2.55% compared to 0.66% in Group T.

Predictor variables from the regressions on categories in Complexity of operations are shown in Table 9. Multiple regression was not carried out on No integration because of the lack of a reliability estimate for this code.

Table 9. Predictor variables for categories in Complexity of operations

	Predictor variable	Beta	R^2	F
Routine	Staff present	0.47	0.16	29.22*** (df 1,150)
	Staff structured	0.41	0.33	36.15*** (df 2,149)
	(Change in R^2 = 0.16)			
Task	Staff structured	-0.38	0.14	24.86*** (df 1,150)
Theme	Nursery Group	0.27	0.10	16.73*** (df 1,150)
	Staff structured	-0.34	0.18	16.83*** (df 2,149)
	(Change in R^2 = 0.08)			
	Staff present	-0.32	0.29	19.74*** (df 3,148)
	(Change in R^2 = 0.10)			

*** - $p<0.0001$

Staff structured and Staff present are both positively associated with Routine use of materials. Betas for each of these predictor variables are quite high: 0.47 for Staff present and 0.41 for Staff structured. Both types of Staff involvement therefore, have a strong influence on the occurrence of Routine. The overall R^2 is 0.33, indicating that a third of the variance for Routine is explained by the predictor variables. The result shows that children are more likely to be involved in Routine rather than any other use of materials, during Staff present and Staff structured.

A negative association with Staff structured was found for the code Task; children were less likely to be involved in this type of behaviour during Staff structured. The influence of the predictor variable was moderate, as indicated by a Beta of -0.38. However, the explained contribution to the variance for Task was small. An R^2 of only 0.14 was produced, demonstrating that Staff structured played a minor role in contributing to the variance for Task.

Significant predictor variables for Theme are Nursery Group, Staff structured and Staff present. Theme was more often observed in day nurseries without teachers (see Table 8) and was negatively associated with both Staff structured and Staff present. In both Nursery Groups, Theme was less likely to occur during these two forms of Staff involvement. Betas for the three independent variables show that the influence of each of

these on Theme is moderate: values are 0.27 for Nursery Group, -0.34 for Staff structured and -0.32 for Staff present. Nearly a third of the variance for Theme is explained by the contributions of the predictor variables, as shown by the overall R^2 of 0.29.

B. Split-half analysis

Multiple regression analyses were carried out on the data from each Nursery Group. This was in order to see whether the results for dependent variables that were not significantly affected by Nursery Group, could be replicated in Groups T and W. In an earlier analysis examining the correlations among independent variables (see Table 1, p. 109), two significant results were obtained. In day nurseries without teachers, Staff present was correlated with Child's sex and Staff structured with Venue. Split-half analysis seemed especially necessary in view of these correlations. The results are presented in turn for Social participation, Absence of play, Use of materials and Complexity of operations.

Social participation

Table 11 shows for each Nursery Group, the predictor variables obtained from regressions on categories in Social participation. In both Nursery Groups, Staff structured is negatively associated with Solitary and positively associated with Parallel behaviour. Co-operative and Staff present are also negatively related

Table 11. Predictor variables for categories in Social participation in each Nursery Group

	Predictor variable	GROUP W Beta	R^2	F[a]
Onlooker	-	-	-	-
Solitary	Staff structured	-0.32	0.10	8.75***
Parallel	Staff structured	0.58	0.34	39.68****
Associative	Staff structured	-0.23	0.05	4.34*
Co-operative	Staff present	-0.30	0.09	7.54**
		GROUP T		
Onlooker	-	-	-	-
Solitary	Staff structured	-0.38	0.14	11.56***
Parallel	Staff structured	0.70	0.49	67.10****
Associative	Staff present	0.32	0.10	8.11**
Co-operative	Staff present	-0.24	0.06	4.39*

a - df 1,78 for Group W; 1,70 for Group T

* - $p<0.05$
** - $p<0.01$
*** - $p<0.005$
**** - $p<0.0001$

in both Nursery Groups. Onlooker is not significantly related to any of the independent variables, in either Group T or Group W.

Associative is the only dependent variable for which differing predictor variables were obtained in each Nursery Group. A negative relationship between Staff structured and Associative was found in Group W whereas the dependent variable was positively associated with Staff present in Group T. In the sample as a whole, significant predictor variables for Associative are Staff present and Venue (see Table 3, p. 113).

An inspection of the Betas and R^2 values for each dependent variable (see Table 11) shows that they are very close in Groups W and T. The results indicate that the findings for all categories of Social participation except for Associative, have been replicated in each Nursery Group.

Absence of play

Table 12 shows the predictor variables in each Nursery Group, for categories in Absence of play. Staff structured and Nonplay are positively associated in both Groups W and T; the Beta and R^2 values for Staff structured are very similar in each Group. However, Child's sex and Venue were significant predictor variables in Group W but not in Group T. Nonplay was one of the behavioural categories which differed according to Nursery Group in the main sample, possibly as a consequence of the differential significance of Child's

Table 12. Predictor variables for categories in Absence of play in each Nursery Group

	Predictor variable	GROUP W Beta	R^2	F
Nonplay	Staff structured	0.43	0.14	12.86** (df 1,78)
	Child's sex	-0.24	0.20	9.53** (df 2,77)
	(Change in R^2 = 0.06)			
	Venue	0.23	0.25	8.34*** (df 3,76)
	(Change in R^2 = 0.05)			
Unoccupied	Venue	-0.29	0.09	7.43* (df 1,78)
Conversation	-	-	-	-
		GROUP T		
Nonplay	Staff structured	0.46	0.21	18.96*** (df 1,70)
Unoccupied	-	-	-	-
Conversation	-	-	-	-

* - $p<0.01$
** - $p<0.001$
*** - $p<0.0001$

sex and Venue in the two groups of nurseries.

In Group W, Venue was a significant factor for Unoccupied but this was not the case in Group T. Conversation was not significantly related to any of the independent variables, in either of the two Nursery Groups. For Absence of play categories therefore, similar findings were obtained in the two Nursery Groups for Conversation. However, the results were only partially replicated for Nonplay and not replicated for Unoccupied.

Use of materials

Table 13 shows the predictor variables in Groups T and W for categories in Use of materials. Staff structured is positively associated with No materials and negatively associated with Appropriate, in each of the two Nursery Groups. For both dependent variables, No materials and Appropriate, the Betas and R^2 values obtained for Staff structured are very similar in the two groups of nurseries. This is particularly notable for Appropriate.

Partial and Staff structured are negatively related in both groups of nurseries; similar Beta and R^2 values for the predictor variable are found in each Nursery Group. (The proportion of variance attributable to Staff structured is 0.05 in Group W; 0.07 in Group T). However, Venue is a significant factor for Partial in Group W but not in Group T. Both predictor variables, Venue and Staff structured, were significantly associated with Partial in the sample as a whole (see Table 7, p. 119).

Table 13. Predictor variables for categories in Use of materials in each Nursery Group

	Predictor variable	GROUP W Beta	R^2	F
No materials	Staff structured	0.59	0.35	41.26**** (df 1,78)
Partial	Venue	-0.36	0.09	8.09** (df 1,78)
	Staff structured	-0.23	0.14	6.48*** (df 2,77)
	(Change in R^2 = 0.05)			
Appropriate	Staff structured	-0.49	0.24	25.10**** (df 1,78)
Symbolic	Staff present	-0.45	0.20	19.95**** (df 1,78)
		GROUP T		
No materials	Staff structured	0.50	0.25	23.21**** (df 1,70)
Partial	Staff structured	-0.26	0.07	4.91* (df 1,70)
Appropriate	Staff structured	-0.48	0.23	20.95**** (df 1,70)
Symbolic	-	-	-	-

* - p<0.05
** - p<0.01
*** - p<0.005
**** - p<0.0001

Differences in the predictor variables obtained for each Nursery Group were found not only for Partial but also for Symbolic. Staff present and Symbolic were negatively associated in Group W whereas none of the independent variables significantly affected Symbolic play in Group T. Differing results for each group of nurseries are to be expected since Nursery Group was a significant predictor variable for Symbolic, in the sample as a whole (see Table 7, p. 119).

Overall, the results for No materials and Appropriate were replicated in each Nursery Group. Findings for one of the two significant predictor variables affecting Partial, Staff structured, were also replicated but the results for Symbolic, as expected, differed in the two groups of nurseries.

Complexity of operations

Predictor variables in the two Nursery Groups for categories in Complexity of operations are shown in Table 14. The results for all codes in this set of measures are replicated in each Nursery Group. Staff present and Staff structured are each positively associated with Routine whereas Task and Staff structured are negatively related. Both Staff structured and Staff present are negatively associated with Theme.

The relative strengths of the predictor variables for Theme differ in each Nursery Group: in Group W, Staff structured is more influential than Staff present whereas the reverse is true in Group T. However, the absolute

Table 14. Predictor variables for categories in Complexity of operations in each Nursery Group

	Predictor variable	Beta	R^2	F
		GROUP W		
Routine	Staff present	0.47	0.15	14.27*** (df 1,78)
	Staff structured	0.46	0.36	21.46*** (df 2,77)
	(Change in R^2 = 0.20)			
Task	Staff structured	-0.30	0.09	7.69* (df 1,78)
Theme	Staff structured	-0.39	0.11	9.64** (df 1,78)
	Staff present	-0.35	0.23	11.24*** (df 2,77)
	(Change in R^2 = 0.12)			
		GROUP T		
Routine	Staff present	0.46	0.17	13.88*** (df 1,70)
	Staff structured	0.36	0.29	14.42*** (df 2,69)
	(Change in R^2 = 0.13)			
Task	Staff structured	-0.46	0.21	18.50*** (df 1,70)
Theme	Staff present	-0.37	0.10	7.78* (df 1,70)
	Staff structured	-0.35	0.22	9.59*** (df 2,69)
	(Change in R^2 = 0.12)			

* - $p<0.01$; ** - $p<0.005$; *** - $p<0.0005$

values of Betas for Staff structured and Staff present all fall within the range -0.35 to -0.39 and the final R^2 values in Groups T and W are almost equal. For Task and Routine too, the Betas and R^2 values obtained for the significant predictor variables are similar in the two groups of nurseries.

C. The influence of Nursery Group, Staff involvement, Child's sex and Venue summarised

The overall dependence of individual behaviour categories on a set of independent variables was assessed using multiple regression analysis. Five potential predictors were used: Nursery Group, Staff present, Staff structured, Child's sex and Venue. Significant predictor variables for each dependent variable, obtained from the regression analyses carried out on the sample as a whole, are summarised in Table 10. The sign in brackets indicates the direction of the relationship.

Overall, Nursery Group was not a significant factor for many dependent variables. Only three categories of child behaviour - Symbolic, Theme and Nonplay - differed according to Nursery Group. Both symbolic and thematic play occurred more often in day nurseries without teachers whereas nonplay was observed more frequently in those nurseries with teachers.

Children's behaviour was more likely to be associated, whether positively or negatively, with categories of staff involvement. Routine operations were

Table 10. Summary of significant predictor variables for dependent variables

Dependent variable	Predictor variable
Solitary	Staff structured (-)
	Staff present (-)
Parallel	Staff structured (+)
	Venue (-)
Associative	Staff present (+)
	Venue (+)
Co-operative	Staff present (-)
	Staff structured (-)
Nonplay	Nursery Group (-)
	Staff structured (+)
No materials	Staff structured (+)
Partial	Venue (-)
	Staff structured (-)
Appropriate	Staff structured (-)
Symbolic	Staff present (-)
	Staff structured (-)
	Nursery Group (+)
Routine	Staff present (+)
	Staff structured (+)
Task	Staff structured (-)
Theme	Nursery Group (+)
	Staff structured (-)
	Staff present (-)

associated with both forms of staff involvement, and non-play as well as activities involving no use of materials were positively related to Staff structured. Regarding social participation, positive associations with Staff structured and Staff present, respectively, were found for parallel and associative engagement.

Negative associations with both Staff present and Staff structured were found for Co-operative and Solitary participation. All categories in Use of materials, except No materials, were negatively associated with Staff structured. For Complexity of operations, as with other sets of measures, Staff structured was negatively associated with the more complex forms such as Task and Theme, although positively linked with Routine. Staff present was also negatively associated with Theme and positively related to Routine.

Nursery differences were found in the occurrence of parallel and associative participation, as well as partial use of materials. None of the categories differed according to child's sex.

The results show that though there were some differences in the behaviour of 3-year-olds in day nurseries with teachers, compared to that of 3-year-olds in nurseries without teachers, the differences were few and not in the direction expected. The hypothesis that complex cognitive operations, such as Task and Theme, would be more often observed in the children from nurseries with teachers was not confirmed. In fact, more

thematic play was found in nurseries without teachers and the same was true for symbolic play.

CHAPTER SEVEN: RESULTS - CHILDREN'S BEHAVIOUR DURING STAFF INVOLVEMENT

The multiple regression analyses carried out in the previous chapter showed that Staff present or Staff structured were more often significant predictor variables, and hence likely to influence children's behaviour, than Nursery Group. In this chapter, children's behaviour during staff involvement is explored further. Analyses were carried out on data drawn from that examined in Chapter Six. The results are presented as follows: (a) the total amount of staff involvement in each Nursery Group; (b) analyses of the frequencies of behavioural categories during Staff present and Staff structured; (c) children's behaviour during staff involvement summarised.

A. Total amount of staff involvement

The aims of the analyses are to determine: (a) how often staff in each group of nurseries are involved with children; (b) whether the pattern of this involvement differs for girls and boys within each group of nurseries; and (c) whether the overall pattern of staff involvement with all children differs in each Nursery Group.

The mean percentage scores and mean number of samples for categories in staff involvement are shown in Table 1. Staff present is the most common form of adult

Table 1. Mean percentage scores and mean number of samples (in brackets) for codes in staff involvement

Group W	Girls (n=40)	Boys (n=40)	Total (N=80)
Staff care	3.19	3.00	3.09
	(2.55)	(2.40)	(2.48)
Staff present	19.79	12.91	16.34
	(15.83)	(10.33)	(13.08)
Staff instructive	11.94	12.41	12.17
	(9.55)	(9.93)	(9.74)
Group T	**Girls (n=36)**	**Boys (n=36)**	**Total (N=72)**
Staff care	4.86	4.73	4.79
	(3.89)	(3.78)	(3.83)
Staff present	16.64	19.20	17.92
	(13.31)	(15.36)	(14.33)
Staff instructive	13.16	15.35	14.25
	(10.53)	(12.28)	(11.40)

involvement, in both Groups T and W,.followed by Staff structured. The means for Staff care in both Nursery Groups are much lower than those for either of the other two forms of involvement.

Girls in Group W show higher means for Staff present

than Boys in the same Nursery Group whereas the opposite pattern can be seen in day nurseries with teachers. When examining the correlations among predictor variables for the multiple regression analysis in Chapter Six (see Table 1, p. 109), a significant correlation was found between Staff present and Child's sex in Group W. No such correlation was found for Group T. In day nurseries without teachers, therefore, Girls are more likely to be observed with a member of staff nearby, compared to boys, but this was not the case in nurseries with teachers.

The frequencies and percentages for categories of staff involvement are shown in Table 2. (Appendix 4 shows the frequencies for Staff present and Staff structured with Girls and Boys in each nursery). From Table 2, we can see that the percentage for Staff present with Girls in Group W (9.89%) is notably higher than that for Boys in the same Nursery Group (6.45%). It is quite similar, however, to the values for both Girls and Boys in Group T (8.32% and 9.6%, respectively).

Percentages for Staff care are almost equal for Girls and Boys within each Nursery Group. Staff structured, too, occurs more or less equally with both sexes in Groups W and T. Overall, the total proportion of the child's time during which there is some form of involvement with staff seems to be roughly similar for the two groups of nurseries - 31.61% in Group W and 36.96% in Group T.

Chi-square tests were carried out to compare the

Table 2. Frequencies and percentages (in brackets) of codes in staff involvement

Group W	Girls (n=40)	Boys (n=40)	Total (N=80)
Staff care	102	96	198
	(1.59)	(1.50)	(3.09)
Staff present	633	413	1046
	(9.89)	(6.45)	(16.34)
Staff structured	382	397	779
	(5.97)	(6.20)	(12.17)
Total	1117	906	2023
	(17.45)	(14.16)	(31.61)

Group T	Girls (n=36)	Boys (n=36)	Total (N=72)
Staff care	140	136	276
	(2.43)	(2.36)	(4.79)
Staff present	479	553	1032
	(8.32)	(9.60)	(17.92)
Staff structured	379	442	821
	(6.58)	(7.67)	(14.25)
Total	998	1131	2129
	(17.33)	(19.64)	(36.96)

frequencies of staff involvement codes for Girls and Boys within each Nursery Group. The combined frequencies (for all children) from each Nursery Group were also compared. A significant result was found for Group W but not for Group T (see Table 3), indicating that there is greater disparity in the extent of adult involvement with Girls and Boys in day nurseries without teachers than there is in Group T. The overall pattern of staff involvement codes also differed significantly in each Nursery Group.

Table 3. Chi-square tests on frequencies of staff involvement

	X^2	df	p
Child's sex - Gp. W	25.01	2	0.001
Child's sex - Gp. T	1.90	2	NS
Nursery Group	11.33	2	0.01

B. Children's behaviour during staff involvement

The aims of the analyses are to determine: (a) whether the pattern of staff involvement differs for girls and boys within each group of nurseries; and (b) whether the pattern of behavioural codes (for all children) during staff involvement differs in each Nursery Group.

Chi-square tests were carried out on the frequencies

of behavioural categories for Girls and Boys within each Nursery Group, during Staff present as well as Staff structured. Comparisons were also made of the combined frequencies (for Girls and Boys) in each group of nurseries. Staff care was excluded from these analyses since it lacked an inter-observer reliability estimate. The results are presented in turn for Social participation, Absence of play, Use of materials and Complexity of operations.

Social participation

The frequencies and percentages of Social participation categories during Staff present are shown in Table 4. Associative was the predominant form of participation for children in each Nursery Group. Total percentages for this category were 65.87% in Group W and 77.03% in Group T.

The next highest percentages were those for Parallel and Onlooker; in both Groups W and T, there was a large gap separating the overall percentages for these codes from Associative. In day nurseries without teachers, the total percentage for Co-operative is slightly lower than that for Solitary (2.77% compared to 3.54%) whereas the opposite pattern can be seen in Group T. Total percentages in this Nursery Group are 4.07% and 1.55% for Co-operative and Solitary, in turn.

The percentages for Onlooker and Parallel are higher in Group W than in Group T, for both sexes. Girls in each Nursery Group appear to spend more time in Onlooker. This

Table 4. Frequencies and percentages (in brackets) of Social participation codes during Staff present

Group W	Girls (n=40)	Boys (n=40)	Total (N=80)
Onlooker	74	47	121
	(7.07)	(4.49)	(11.57)
Solitary	23	14	37
	(2.20)	(1.34)	(3.54)
Parallel	96	74	170
	(9.18)	(7.07)	(16.25)
Associative	425	264	689
	(40.63)	(25.24)	(65.87)
Co-operative	15	14	29
	(1.43)	(1.34)	(2.77)
Total	633	413	1046
(N=1046)	(60.52)	(39.48)	(100.00)

Group T	Girls (n=36)	Boys (n=36)	Total (N=72)
Onlooker	47	31	78
	(4.55)	(3.00)	(7.56)
Solitary	10	6	16
	(0.97)	(0.58)	(1.55)
Parallel	38	63	101
	(3.68)	(6.10)	(9.79)
Associative	369	426	795
	(35.76)	(41.28)	(77.03)
Co-operative	15	27	42
	(1.45)	(2.62)	(4.07)
Total	479	553	1032
(N=1032)	(46.41)	(53.59)	(100.00)

is particularly notable in day nurseries without teachers, where the percentage is 7.07% for Girls compared to 4.49% for Boys. The relative positions for Girls and Boys regarding the codes Parallel and Associative appear to be reversed in the two groups of nurseries. Girls in Group W are more likely to be engaged in Parallel and Associative during Staff present, compared to Boys in the same Nursery Group. Boys in Group T, on the other hand, are more likely than Girls in this group of nurseries, to be observed in these forms of Social participation.

Table 5 shows the frequencies and percentages of Social participation categories during Staff structured. The most common form of participation here was Parallel, followed by Associative. This is in contrast to the situation during Staff present, where Associative was the predominant form of participation. In both groups of nurseries, Co-operative was ranked third during Staff structured.

In day nurseries without teachers, Onlooker occurred more frequently than was the case in Group T. The higher proportion in Group W is largely due to the percentage exhibited by Girls - 7.96% compared to 2.57% for Boys. The code Solitary was very rarely observed during Staff structured.

Comparisons of the frequencies of Social participation categories for Girls and Boys during Staff structured yielded significant results in both groups of

Table 5. Frequencies and percentages (in brackets) of Social participation codes during Staff structured

Group W	Girls (n=40)	Boys (n=40)	Total (N=80)
Onlooker	62	20	82
	(7.96)	(2.57)	(10.53)
Solitary	0	0	0
	(0.00)	(0.00)	(0.00)
Parallel	175	177	352
	(22.46)	(22.72)	(45.19)
Associative	111	128	239
	(14.25)	(16.43)	(30.68)
Co-operative	34	72	106
	(4.36)	(9.24)	(13.61)
Total	382	397	779
(N=779)	(49.04)	(50.96)	(100.00)

Group T	Girls (n=36)	Boys (n=36)	Total (N=72)
Onlooker	9	24	33
	(1.10)	(2.92)	(4.02)
Solitary	0	3	3
	(0.00)	(0.37)	(0.37)
Parallel	138	244	382
	(16.81)	(29.72)	(46.53)
Associative	172	142	314
	(20.95)	(17.30)	(38.25)
Co-operative	60	29	89
	(7.31)	(3.53)	(10.84)
Total	379	442	821
(N=821)	(46.16)	(53.84)	(100.00)

Table 6. Chi-square tests on frequencies of Social participation codes during Staff present and Staff structured

	X^2	df	p
Staff present			
Child's sex - Gp. W	2.56	4	NS
Child's sex - Gp. T	12.74	4	0.02
Nursery Group	45.04	4	0.001
Staff structured			
Child's sex - Gp. W	36.08	3	0.001
Child's sex - Gp. T	45.74	3	0.001
Nursery Group	32.83	3	0.001

nurseries (see Table 6). Solitary was excluded from the analyses of Social participation during Staff structured due to the extremely low frequencies observed. For Social participation during Staff present, significant differences were found with respect to frequencies for Girls and Boys in Group T but not in Group W. The combined frequencies of Social participation categories for all children, during both Staff present and Staff structured, differed significantly according to Nursery Group.

Absence of play

The frequencies and percentages of Absence of play categories during Staff present are shown in Table 7. Conversation took up the greatest proportion of time in

Table 7. Frequencies and percentages (in brackets) of Absence of play codes during Staff present

Group W	Girls (n=40)	Boys (n=40)	Total (N=80)
Nonplay	107	62	169
	(10.23)	(5.93)	(16.16)
Unoccupied	97	51	148
	(9.27)	(4.88)	(14.15)
Conversation	152	130	282
	(14.53)	(12.43)	(26.96)
Total	356	243	599
(N=1046)	(34.03)	(23.23)	(57.27)

Group T	Girls (n=36)	Boys (n=36)	Total (N=72)
Nonplay	124	153	277
	(12.02)	(14.83)	(26.84)
Unoccupied	48	37	85
	(4.65)	(3.59)	(8.24)
Conversation	138	145	283
	(13.37)	(14.05)	(27.42)
Total	310	335	645
(N=1032)	(30.04)	(32.46)	(62.50)

both groups of nurseries, accounting for 26.96% in Group W and 27.42% in Group T. In day nurseries with teachers, the total percentage for Nonplay was about equal that of

Conversation - 26.84% compared to 27.42%. Children were least often engaged in Unoccupied during Staff present; 14.15% of the time in Group W and 8.24% in Group T was spent in this way.

The percentages for Absence of play categories appear to be roughly equal for Girls and Boys in day nurseries with teachers. Boys in Group W seem to spend less time than Girls in Nonplay (5.93% and 10.23%, respectively) as well as Unoccupied (4.88% compared to 9.27%). In each group of nurseries, both sexes engage in Conversation to a similar extent.

The frequencies and percentages of Absence of play categories during Staff structured are shown in Table 8. Nonplay is by far the most frequently occurring category in both Nursery Groups. The total proportion of time spent in this way is 39.41% in Group W and 47.87% in Group T. In comparison, the category that occurred most often during Staff present was Conversation. The code observed least often during Staff structured in day nurseries with teachers is Unoccupied (8.77%). The total percentage for this code is, however, second highest in Group W (15.4%). Conversation accounts for almost equal proportions of time in the two Nursery Groups - 13.35% in Group W and 13.64% in Group T.

Similar percentages for Absence of play categories during Staff structured were found for Girls and Boys in Group T, as was the case during Staff present for this Nursery Group. Boys in Group W however, appear to be more

Table 8. Frequencies and percentages (in brackets) of Absence of play codes during Staff structured

Group W	Girls (n=40)	Boys (n=40)	Total (N=80)
Nonplay	157	150	307
	(20.15)	(19.26)	(39.41)
Unoccupied	74	46	120
	(9.50)	(5.91)	(15.40)
Conversation	37	67	104
	(4.75)	(8.60)	(13.35)
Total	268	263	531
(N=779)	(34.40)	(33.76)	(68.16)

Group T	Girls (n=36)	Boys (n=36)	Total N=72)
Nonplay	162	231	393
	(19.73)	(28.14)	(47.87)
Unoccupied	32	40	72
	(3.90)	(4.87)	(8.77)
Conversation	59	53	112
	(7.19)	(6.46)	(13.64)
Total	253	324	577
(N=821)	(30.82)	(39.46)	(70.28)

often engaged in Conversation during Staff structured and less often in Unoccupied, compared to Girls in the same Nursery Group. Nonplay occurs in roughly equal propor-

tions for Girls and Boys in day nurseries without teachers.

Comparisons of the frequencies of Absence of play categories during Staff present and Staff structured were not significant in day nurseries with teachers (see Table 9). Significant differences were found for Group W, however, indicating that in this group of nurseries, the frequency distributions of categories in Absence of play during both Staff present and Staff structured, are different for Girls compared to Boys. Combined frequencies for all children in each Nursery Group were significantly different; this was the case for Staff present as well as Staff structured.

Table 9. Chi-square tests on frequencies of Absence of play codes during Staff present and Staff structured

	X^2	df	p
Staff present			
Child's sex - Gp. W	6.93	2	0.05
Child's sex - Gp. T	3.67	2	NS
Nursery Group	41.54	2	0.001
Staff structured			
Child's sex - Gp. W	15.30	2	0.001
Child's sex - Gp. T	4.66	2	NS
Nursery Group	20.99	2	0.001

Use of materials

Frequencies and percentages of Use of materials categories during Staff present are shown in Table 10. The most frequently observed code in both Nursery Groups was Appropriate. Of the total time spent in Staff present, 32.41% in Group W and 28.59% in Group T was spent occupied in Appropriate use of materials. Symbolic was the next most common code though its incidence is much lower than that of Appropriate. Total percentages were similar in both Nursery Groups: 4.59% in Group W and 5.52% in day nurseries with teachers. The codes Indiscriminate and Partial during Staff present occurred rarely in both groups of nurseries.

Girls in Group W, compared to Boys in the same Nursery Group, appear to be more often involved in Appropriate. Percentages for this category in Group W were 20.84% for Girls and 11.57% for Boys. In day nurseries with teachers, the occurrence of Appropriate is similar for both sexes. Within the same Nursery Group however, Boys appear to be engaged in Symbolic more often than Girls (3.68% compared to 1.84%). Relatively little time was spent in No materials during Staff present, in both Groups T and W, and it is unclear whether this code is used differentially according to the child's sex.

Frequencies and percentages of Use of materials categories during Staff structured are shown in Table 11. *Appropriate* and *No* materials are the two categories with the highest total percentages in both Nursery Groups. Few

Table 10. Frequencies and percentages (in brackets) of Use of materials codes during Staff present

Group W	Girls (n=40)	Boys (n=40)	Total (N=80)
No materials	19	10	29
	(1.82)	(0.96)	(2.77)
Indiscriminate	5	6	11
	(0.48)	(0.57)	(1.05)
Partial	8	12	20
	(0.76)	(1.15)	(1.91)
Appropriate	218	121	339
	(20.84)	(11.57)	(32.41)
Symbolic	27	21	48
	(2.58)	(2.01)	(4.59)
Total	277	170	447
(N=1046)	(26.48)	(16.25)	(42.73)

Group T	Girls (n=36)	Boys (n=36)	Total (N=72)
No materials	8	13	21
	(0.78)	(1.26)	(2.03)
Indiscriminate	2	4	6
	(0.19)	(0.39)	(0.58)
Partial	2	6	8
	(0.19)	(0.58)	(0.78)
Appropriate	138	157	295
	(13.37)	(15.21)	(28.59)
Symbolic	19	38	57
	(1.84)	(3.68)	(5.52)
Total	169	218	387
(N=1032)	(16.38)	(21.12)	(37.50)

instances of Symbolic occurred in either of the two groups of nurseries. The codes Indiscriminate and Partial were rarely observed in Group W and no examples of Partial during Staff structured were seen in day nurseries with teachers.

Boys in Group W appear to be more often engaged in Appropriate than was the case for Girls - 8.22% compared to 5.39%. The frequencies of categories other than Appropriate, for Girls and Boys in Group W, are almost equal. In Group T, all 15 instances of Symbolic were exhibited by Girls; Boys were not involved in Symbolic during Staff structured. Boys in Group T, as in Group W, show higher percentages for Appropriate compared to Girls, whereas Girls in day nurseries with teachers were more often involved in No materials.

Chi-square tests were carried out on the frequencies of Use of materials categories for Girls and Boys within each Nursery Group, and on the combined frequencies for each group of nurseries (see Table 12). Because of their very low frequencies, Indiscriminate and Partial were excluded from all tests on frequencies for Staff structured. Indiscriminate was also excluded from the chi-square test of frequencies for Group T during Staff present. The only case in which there was a significant result was that of Use of materials during Staff structured in Group T. Frequencies for Boys and Girls during Staff present in each group of nurseries, and during Staff structured in Group W, were not

Table 11. Frequencies and percentages (in brackets) of Use of materials codes during Staff structured

Group W	Girls (n=40)	Boys (n=40)	Total (N=80)
No materials	62	61	123
	(7.96)	(7.83)	(15.79)
Indiscriminate	2	1	3
	(0.26)	(0.13)	(0.39)
Partial	1	2	3
	(0.13)	(0.26)	(0.39)
Appropriate	42	64	106
	(5.39)	(8.22)	(13.61)
Symbolic	7	6	13
	(0.90)	(0.77)	(1.67)
Total	114	134	248
(N=779)	(14.63)	(17.20)	(31.84)

Group T	Girls (n=36)	Boys (n=36)	Total (N=80)
No materials	57	49	106
	(6.94)	(5.97)	(12.91)
Indiscriminate	1	2	3
	(0.12)	(0.24)	(0.37)
Partial	0	0	0
	(0.00)	(0.00)	(0.00)
Appropriate	53	67	120
	(6.46)	(8.16)	(14.62)
Symbolic	15	0	15
	(1.83)	(0.00)	(1.83)
Total	126	118	244
(N=821)	(15.35)	(14.37)	(29.72)

Table 12. Chi-square tests on frequencies of Use of materials codes during Staff present and Staff structured

	X^2	df	p
Staff present			
Child's sex - Gp. W	6.98	4	NS
Child's sex - Gp. T	5.03	3	NS
Nursery Group	7.44	4	NS
Staff structured			
Child's sex - Gp. W	3.02	2	NS
Child's sex - Gp. T	16.92	2	0.001
Nursery Group	2.27	2	NS

significantly different. Similarly, the overall frequencies for all children in each Nursery Group did not differ significantly during either Staff present or Staff structured.

Complexity of operations

The frequencies and percentages of Complexity of operations categories during Staff present are shown in Table 13. Children in both groups of nurseries spent most time in Routine, followed by Task. The total percentage for Routine is slightly higher in Group T than in Group W - 25.48% compared to 21.41% - but the converse is true for Task. The total percentage for this category is lower in Group T. Theme was engaged in more often in day

Table 13. Frequencies and percentages (in brackets) of Complexity of operations codes during Staff present

Group W	Girls (n=40)	Boys (n=40)	Total (N=80)
No integration	5	6	11
	(0.48)	(0.57)	(1.05)
Routine	146	78	224
	(13.96)	(7.46)	(21.41)
Task	126	67	193
	(12.05)	(6.41)	(18.45)
Theme	0	19	19
	(0.00)	(1.82)	(1.82)
Total	277	170	447
(N=1046)	(26.48)	(16.25)	(42.73)

Group T	Girls (n=36)	Boys (n=36)	Total (N=72)
No integration	0	0	0
	(0.00)	(0.00)	(0.00)
Routine	109	154	263
	(10.56)	(14.92)	(25.48)
Task	58	64	122
	(5.62)	(6.20)	(11.82)
Theme	2	0	2
	(0.19)	(0.00)	(0.19)
Total	169	218	387
(N=1032)	(16.38)	(21.12)	(37.50)

nurseries without teachers and whilst No integration was occasionally observed in this Nursery Group, it was not observed at all in Group T.

Girls in day nurseries without teachers show notably higher percentages than Boys for Routine and Task. The proportions of time spent in these two categories for Girls and Boys respectively, are: 13.96% and 7.46%, for Routine; 12.05% and 6.41%, for Task. Boys, on the other hand, were more often observed in Theme. In this Nursery Group, there were no instances of Girls engaged in Theme during Staff present.

In day nurseries with teachers, only two examples of Theme occurred; these were demonstrated by Girls. Boys in Group T seem to be more often involved in Routine - 14.92% compared to 10.56% for Girls. The proportion of time spent on Task in this Nursery Group was similar for both sexes.

Table 14 shows the frequencies and percentages of Complexity of operations categories during Staff structured. Again, Routine and Task are the most frequently occurring codes, with a greater difference between the total percentages for these two categories in Group T than in Group W. Total percentages for Routine and Task respectively, were 17.97% and 12.71% in Group W; 19.24% and 9.74% in Group T. No integration occurred only twice in Group W and not at all in day nurseries with teachers. In both Nursery Groups, Theme was rarely observed during Staff structured.

Table 14. Frequencies and percentages (in brackets) of Complexity of operations codes during Staff structured

Group W	Girls (n=40)	Boys (n=40)	Total (N=80)
No integration	1	1	2
	(0.13)	(0.13)	(0.26)
Routine	70	70	140
	(8.99)	(8.99)	(17.97)
Task	43	56	99
	(5.52)	(7.19)	(12.71)
Theme	0	7	7
	(0.00)	(0.90)	(0.90)
Total	114	134	248
(N=779)	(14.63)	(17.20)	(31.84)

Group T	Girls (n=36)	Boys (n=36)	Total (N=72)
No integration	0	0	0
	(0.00)	(0.00)	(0.00)
Routine	60	98	158
	(7.31)	(11.94)	(19.24)
Task	60	20	80
	(7.31)	(2.44)	(9.74)
Theme	6	0	6
	(0.73)	(0.00)	(0.73)
Total	126	118	244
(N=821)	(15.35)	(14.37)	(29.72)

Frequencies for Routine (see Table 14) were equal for Girls and Boys in Group W (70 samples each). Boys in this Nursery Group appear to be more often engaged in Task than Girls - 7.19% and 5.52% respectively. All 7 instances of Theme in Group W occurred in Boys; there were no examples of Girls being involved in Theme during Staff structured.

In day nurseries with teachers, Girls were just as often involved in Routine as in Task (60 samples each) whereas Boys were far more frequently observed in Routine. Frequencies for these two categories in Boys were 98 for Routine compared to 20 for Task. The few instances of Theme observed in day nurseries with teachers were seen in Girls.

Chi-square tests were carried out on the frequencies of Complexity of operations categories during Staff present and Staff structured (see Table 15). The values for Girls and Boys within each Nursery Group were compared, as were the combined frequencies for children in each group of nurseries. Frequencies for No integration and Theme were very low so these codes were excluded from the tests for Staff structured in Group W and Group T, and for Staff present in Group T. No integration was also excluded from the test on combined frequencies during Staff structured. Significant results were obtained for Staff present in Group W, Staff structured in Group T and for the combined frequencies for each Nursery Group during Staff present.

Table 15. Chi-square tests on frequencies of Complexity of operations codes during Staff present and Staff structured

	X^2	df	p
Staff present			
Child's sex - Gp. W	34.11	3	0.001
Child's sex - Gp. T	1.26	1	NS
Nursery Group	39.78	3	0.001
Staff structured			
Child's sex - Gp. W	1.00	1	NS
Child's sex - Gp. T	29.12	1	0.001
Nursery Group	3.17	2	NS

C. Children's behaviour during staff involvement summarised

Overall, the total proportion of the child's time during which there was some form of involvement with staff was 31.61% in Group W and 36.96% in Group T. Significant differences were found in the total frequencies of staff involvement categories, for girls and boys combined, in each Nursery Group. This appears to be due to the differing pattern of staff involvement with girls and boys in day nurseries without teachers; such a result was not found in Group T.

Table 16 summarises the significant findings regarding the frequencies of behavioural categories

Table 16. Summary of significant differences in frequencies of behavioural codes during staff involvement

	Staff present	Staff structured
Social participation	Child's sex: Group T	Child's sex: Group W
	Nursery Group	Child's sex: Group T
		Nursery Group
Absence of play	Child's sex: Group W	Child's sex: Group W
	Nursery Group	Nursery Group
Use of materials		Child's sex: Group T
Complexity of operations	Child's sex: Group W	Child's sex: Group T
	Nursery Group	

during staff involvement. For codes in Social participation and Absence of play, the combined frequencies for all children in each Nursery Group differed significantly during Staff present as well as Staff structured. A similar result was found for Complexity of operations during Staff present but not during Staff structured.

Within each group of nurseries, the frequencies of behavioural codes for girls and boys during staff involvement differed significantly in a number of cases. For day nurseries with teachers, this result was found mainly during Staff structured with: Social participation, Use of materials and Complexity of operations. This type of pattern in Group T was also found for Social participation during Staff present.

In day nurseries without teachers, Staff present was as often associated as Staff structured with differing frequency patterns for girls and boys. Such differences were found for Social participation during Staff structured and for Complexity of operations, during Staff present. For Absence of play, differing patterns for girls and boys were found during both Staff present and Staff structured.

The behavioural codes that occurred most frequently during Staff present and Staff structured are shown in Table 17. In both groups of nurseries, children spent most time in Associative when there was a member of staff nearby, compared to Parallel during Staff structured. For Absence of play too, differing behavioural codes were predominant in the two forms of staff involvement: Conversation was more frequent during Staff present whereas Nonplay was more often engaged in during Staff structured.

Routine behaviour was the most frequently occurring code in Complexity of operations during both Staff

Table 17. Summary of behavioural codes with highest percentages during Staff involvement

	Staff present	Staff structured
Social participation	Associative	Parallel
Absence of play	Conversation	Nonplay
Use of materials	Appropriate	Appropriate/ No materials
Complexity of operations	Routine	Routine

present and Staff structured. The use of materials was most likely to be Appropriate when a member of staff was present. The only case in which the codes used most often were different in each Nursery Group, was for Use of materials during Staff structured: Appropriate was observed most frequently in day nurseries with teachers compared to No materials in Group W.

The results show that within each group of nurseries, significant differences were found in the frequencies of behavioural codes for girls and boys. For day nurseries with teachers, this result was found mainly during Staff structured whereas it was found as often during Staff present as Staff structured for

nurseries without teachers. Combined frequencies for all children, during both forms of staff involvement, were found to differ significantly between the two groups of nurseries in relation to social participation and nonplay but hardly at all regarding the cognitive measures.

CHAPTER EIGHT: RESULTS - EFFECTS OF STAFF POSITION AND GROUP SIZE ON STAFF SPEECH TO CHILDREN

The results presented in this chapter focus on the effects of Staff Position and Group Size on the adult's speech to children. The Staff Position occupied by the adult refers to her belonging to one of the three staff groups A, B or C. Group A comprised 10 nursery officers in day nurseries that did not employ nursery teachers. Group B consisted of 9 nursery officers in day nurseries employing teachers, and the 9 teachers in these nurseries were the individuals who formed Group C. Group Size refers to the number of children in the group with whom the adult was recorded. Audio-recordings of staff were made on two occasions - once with a Small Group and once with a Large Group of children. The findings are summarised at the end of the chapter.

A. Effects of Staff Position and Group Size

The aim of the analyses is to ascertain whether nursery officers and teachers differ in their speech to children. If this is the case, then Staff Position should be a significant factor for codes in each of the six speech activities - Management, Draws attention, Instruction, Pretend play, Conversation and Rapport. More specifically, it was hypothesised that teachers would show a greater level of cognitive content in their speech to children than would nursery nurses. The speech

activities which appear to be most clearly cognitively oriented are Draws attention and Instruction; higher levels of codes in these activities would therefore be expected for teachers compared to nursery nurses.

Two-way nonparametric analysis of variance (Bradley, 1968) was used to analyse the means for the total number of utterances and mean percentage scores for individual speech codes. Twenty-six out of the total of thirty codes were analysed in this way. Scores for the four codes Assists act, Asks for evaluation, Articulates rules of pretend play and Allocates roles were not analysed due to the scarcity of utterances obtained in each case.

Using the mean proportions for each speech code, as a percentage of all utterances, means that values for these codes are not dependent on the adult's total amount of speech. The information provided for each staff group will therefore be comparable despite differences in how much or how little individual members of staff speak to chidren. The results are presented with the means for speech codes within each of the six major activities - Management, Draws attention, Instruction, Pretend play, Conversation and Rapport.

Total amount of speech

The mean total number of utterances for each Staff Position and Group Size of children is shown in Table 1. Neither of the main effects, Staff Position or Group Size, was significant nor was a significant interaction

Table 1. Mean total number of utterances and standard deviations for each Staff Position and Group Size

	Group Size	
	Small Group	Large Group
Group A		
Mean:	360.80	329.60
S.d.:	(93.26)	(62.59)
Group B		
Mean:	358.67	323.44
S.d.:	(50.50)	(91.75)
Group C		
Mean:	314.78	328.00
S.d.:	(71.66)	(50.64)

found from the two-way nonparametric ANOVA. The result indicates that, regardless of group size, the three groups of staff did not differ significantly in terms of their total amount of talk to the children.

The mean total amount of talk during the 20 minutes sampled from each audio-recording is shown in Table 1; Table 2 shows the same information in terms of mean utterances rates per minute. It can be seen that the means for adults in all three staff groups appear to be quite high, though we cannot say from these figures alone how much speech is directed at individual children. In the case of teachers (Group C), the ranges for the mean

Table 2. Mean utterance rates (per minute) and range for each Staff position and Group size

	Group Size	
	Small Group	Large Group
Group A Mean:	**18.04**	**16.48**
Range:	10.05 - 25.95	12.15 - 19.60
Group B Mean:	**17.93**	**16.17**
Range:	13.90 - 22.10	7.90 - 22.15
Group C Mean:	**15.74**	**16.40**
Range:	10.35 - 22.50	11.45 - 21.25

utterance rates per minute, in both the Large and the Small Group, seem to be similar whereas this does not appear to be the case for nursery officers in Groups A and B.

Management

From Table 3, we can see that Directs is the most frequently occurring code in both Group Sizes. It is interesting to note that the mean *percentage* scores for Directs are increased in the Large Group for both groups of nursery officers (Groups A and B) although the mean *number* of utterances remains nearly the same in Group A (34.1 in the Small Group; 34.3 in the Large Group) and

Table 3. Mean percentage scores and mean number of utterances (in brackets) for speech codes in Management

Group Size Small Group	Staff Position Group A	 Group B	 Group C
Asks about intention	0.36	0.90	1.52
	(1.50)	(3.00)	(3.67)
Directs	8.72	8.33	7.81
	(34.10)	(30.22)	(28.22)
Prohibits	1.93	1.36	2.67
	(7.10)	(4.67)	(8.33)
Negotiates	1.77	1.65	2.21
	(6.30)	(5.67)	(6.33)
Indicates own intention	0.92	1.16	1.30
	(2.70)	(4.00)	(3.78)
Provides services	1.92	2.17	3.11
	(6.10)	(7.44)	(9.33)
Large Group	Group A	Group B	Group C
Asks about intention	0.59	1.36	2.63
	(1.90)	(4.33)	(8.78)
Directs	10.59	9.22	9.51
	(34.30)	(27.44)	(30.78)
Prohibits	3.92	3.04	3.34
	(12.10)	(9.44)	(11.00)
Negotiates	2.95	2.17	3.04
	(9.30)	(6.78)	(9.67)
Indicates own intention	0.88	1.56	1.34
	(3.00)	(4.56)	(4.44)
Provides services	4.03	3.33	4.78
	(12.30)	(9.00)	(15.00)

decreases in Group B (30.22 in the Small Group and 27.44 in the Large Group).

In the Large Group, mean percentage scores for Prohibits, Negotiates and Provides services appear to be greater than those for Asks about intention and Indicates own intention. The pattern is similar for scores in the Small Group, though not as marked.

The only code to be affected by Staff Position was Asks about intention (see Table 4). An increase in the mean percentage scores for this code can be seen across staff groups in both the Small Group (0.36% in Group A, 0.90% in Group B, 1.52% in Group C) and the Large Group (0.59% in Group A, 1.36% in Group B, 2.63% in Group C). Teachers were more likely to ask children about their intentions than were nursery officers in either Groups A or B.

Group Size significantly affected the use of three speech codes - Directs, Prohibits and Provides services (see Table 4). For all staff groups, such talk was more often used when the adult was with a large group of chidlren. For the code Provides Services, mean percentage scores in Small and Large Groups respectively, were 1.92% and 4.03% for Group A; 2.17% and 3.33% for Group B; 3.11% and 4.78% for Group C (see Table 3). Similarly, in the case of Prohibits, mean percentage scores in the Small Group were 1.93% for Group A, 1.36% for Group B and 2.67% for Group C, whereas in the Large Group they had increased to 3.92%, 3.04% and 3.34% respectively.

Table 4. Results of two-way nonparametric ANOVAs on mean percentage scores for speech codes in Management

Speech code	Effect			p
Asks about intention	Staff Position+	H=11.27	2df	0.01
Directs	Group Size*	T=6	N=10	0.05
Prohibits	Group Size*	T=5	N=10	0.02
Provides services	Group Size*	T=4	N=10	0.02

+ - Kruskal-Wallis ANOVA

* - Wilcoxon matched-pairs signed-ranks test (2-tailed)

Neither Staff Position nor Group Size were significant factors for the remaining codes in Management - Negotiates and Indicates own intention. Although the T value for Group Size did not reach significance for the code Negotiates, there appears to be a tendency for the mean percentage scores to increase in the Large Group (see Table 3). For Small and Large groups respectively, the mean percentage scores are 1.77% and 2.95% for Group A; 1.65% and 2.17% for Group B; 2.21% and 3.04% for Group C.

The findings indicate that in the activity of

Management, where the emphasis is on working out what to do next, Group Size is a more salient factor than Staff Position. With the exception of asking children what they would like to do next, teachers and nursery officers seem to make similar use of this type of speech to children.

Draws attention

Mean percentage scores and the mean number of utterances for speech codes in Draws attention are shown in Table 5. In both Small and Large Groups, the highest mean percentage of utterances was found for the speech code Describes environment, followed by Asks for description. In contrast, only a small proportion of talk in either Group Size included the code Marks action.

Group Size was highly significant for the code Draws attention to self ($T=0$, $N=10$; $p<0.01$). All staff used this type of speech more often with a large group of chidlren. Scores in the Small and Large Groups respectively were 2.58% and 5.59% for Group A; 2.23% and 5.53% for Group B; 3.0% and 5.57% for Group C.

Staff Position did not prove to be a significant factor for any of the codes in Draws attention. Nonparametric ANOVAs carried out on the codes Marks Action, Describes environment and Asks for description did not yield significant results. The hypothesis that the use of codes in Draws attention would be greater for teachers than for nursery nurses was therefore not confirmed.

Table 5. Mean percentage scores and mean number of utterances (in brackets) for speech codes in Draws attention

Group Size Small Group	Staff Position Group A	Group B	Group C
Marks action	0.70	0.51	0.48
	(2.60)	(1.67)	(1.44)
Draws attention to self	2.58	2.23	3.00
	(10.10)	(7.78)	(9.22)
Describes environment	25.81	28.05	26.16
	(95.20)	(100.44)	(81.67)
Asks for description	13.54	15.99	12.17
	(52.60)	(57.67)	(36.67)
Large Group	**Group A**	**Group B**	**Group C**
Marks action	0.63	0.74	0.62
	(2.10)	(2.33)	(2.00)
Draws attention to self	5.59	5.53	5.57
	(19.10)	(17.11)	(17.89)
Describes environment	23.96	30.12	27.06
	(75.90)	(98.44)	(87.67)
Asks for description	11.97	14.10	12.01
	(39.00)	(49.33)	(38.78)

Instruction

The highest mean percentage scores in both Small and Large Groups were those for the code Evaluates (see Table 6). This was followed by mean percentages for Instructs. In general, relatively little talk was coded using categories in the activity of Instruction. Assists act and Asks for evaluation were not included in the analyses since very few utterances were coded in this way. For both Groups A and B, the mean number of utterances for Asks for evaluation, in the Small Group, was zero.

The main effect of Staff Position was not significant for any of the codes in Instruction. As was the case for Draws attention, the hypothesis that codes in Instruction would be used significantly more often by teachers than by nursery officers, was not confirmed.

Significant interactions between Staff Position and Group Size were obtained for two out of the three codes analysed - Instructs and Demonstrates. Teachers (Group C) showed an increase in their mean proportional use of Instructs with a large group of children compared to a small group, whereas the reverse was true for nursery officers in both Groups A and B. For the code Demonstrates, teachers as well as nursery officers in Group A increased their use of this form of speech in the large group. In contrast, nursery officers in Group B used less of this code when they were with a large group of children.

Table 6. Mean percentage scores and mean number of utterances (in brackets) for speech codes in Instruction

Group Size Small Group	Staff Position Group A	 Group B	 Group C
Instructs	3.12	1.74	1.92
	(9.90)	(6.11)	(5.67)
Assists act	0.09	0.32	0.18
	(0.30)	(1.00)	(0.44)
Demonstrates	0.38	0.57	0.21
	(1.40)	(2.00)	(0.67)
Evaluates	4.62	5.30	3.94
	(16.70)	(18.33)	(12.33)
Asks for evaluation	0.00	0.00	0.08
	(0.00)	(0.00)	(0.22)
Large Group	Group A	Group B	Group C
Instructs	2.19	0.83	2.83
	(7.20)	(3.00)	(9.11)
Assists act	0.16	0.13	0.20
	(0.50)	(0.44)	(0.67)
Demonstrates	0.99	0.24	0.65
	(3.20)	(0.78)	(2.11)
Evaluates	5.00	4.16	4.28
	(15.70)	(11.78)	(14.33)
Asks for evaluation	0.12	0.10	0.06
	(0.40)	(0.33)	(0.22)

Neither Staff Position nor Group Size were significant factors affecting the speech code Evaluates.

Table 7. Results of two-way nonparametric ANOVAs on mean percentage scores for codes in Instruction

Speech code	Effect			p
Instructs	Interaction+	H=6.7	2df	0.05
Demonstrates	Interaction+	H=8.03	2df	0.02

+ - Kruskal-Wallis ANOVA

Pretend play

Very few utterances were categorised as Articulates rules of pretend play and Allocates roles; these codes were therefore not analysed by nonparametric ANOVAs. In Group B, the mean number of utterances for Articulates rules of pretend play was zero in both Group Sizes (see Table 8). Neither Group B nor Group C had any utterances coded as Allocates roles in the Large Group.

The main effect of Staff Position was not significant for any of the codes in Pretend play. A significant interaction between Staff Position and Group Size was found for the code Asks for description of pretend play ($H=9.3$, 2df; $p<0.01$). Nursery officers in both Groups A and B were more likely to ask for such descriptions when

Table 8. Mean percentage scores and mean number of utterances (in brackets) for speech codes in Pretend play

Group Size	Staff Position		
Small Group	Group A	Group B	Group C
Asks for description of pretend play	0.89 (2.70)	0.59 (2.11)	2.98 (10.89)
Describes pretend play	2.30 (5.60)	1.63 (6.22)	4.36 (15.89)
Elaborates pretend play	2.58 (7.20)	1.17 (4.67)	1.76 (7.33)
Articulates rules of pretend play	0.23 (0.70)	0.00 (0.00)	0.38 (1.67)
Allocates roles	0.21 (0.70)	0.19 (0.78)	0.03 (0.11)
Large Group	Group A	Group B	Group C
Asks for description of pretend play	2.54 (8.40)	0.75 (2.56)	1.58 (5.44)
Describes pretend play	3.92 (13.40)	1.30 (4.56)	3.12 (10.33)
Elaborates pretend play	1.58 (5.50)	0.08 (0.22)	1.76 (6.22)
Articulates rules of pretend play	0.45 (1.50)	0.00 (0.00)	0.12 (0.44)
Allocates roles	0.11 (0.40)	0.00 (0.00)	0.00 (0.00)

they were with a large group of children whereas teachers were more likely to make these requests in the small group.

No significant main effects or interactions were found from the analyses of the speech codes Describes pretend play and Elaborates pretend play. Mean percentage scores for Elaborates pretend play were the same in both Group Sizes for Group C (1.76%) whereas they were lower in the Large Group compared to the Small Group for Groups A (1.58% and 2.58% respectively) and B (0.08% and 1.17% respectively).

Conversation

Asks for information and Gives information are the two speech codes with the highest mean percentage scores in both Group Sizes (see Table 9). In contrast, few utterances are coded as Talks about reasons for actions, whether in the Small or the Large Group, and codes referring to causal explanations are rare in all three staff groups.

The main effects of Staff Position ($H=8.27$, 2df; $p<0.02$) and Group Size ($T=4$, $N=10$; $p<0.02$) were both significant for the code Gives information. Teachers were less likely to give information i.e. talk about events that were not ongoing, or people and objects that were not present, than were nursery officers. All three staff groups decreased their use of this speech code when they were with a large group of children.

Table 9. Mean percentage scores and mean number of utterances (in brackets) for speech codes in Conversation

Group Size Small Group	Staff Position Group A	Group B	Group C
Asks for information	3.55	4.15	2.58
	(12.30)	(15.11)	(7.44)
Gives information	3.84	5.35	2.77
	(14.30)	(19.67)	(9.00)
Asks for causal	1.03	0.59	0.71
explanation	(3.70)	(2.11)	(2.33)
Gives causal	1.03	0.86	0.73
explanation	(3.80)	(2.89)	(2.33)
Talks about reasons	0.37	0.34	0.34
for actions	(1.10)	(1.33)	(1.11)
Large Group	**Group A**	**Group B**	**Group C**
Asks for information	2.80	3.03	0.88
	(11.10)	(9.33)	(2.78)
Gives information	2.90	4.45	0.81
	(11.00)	(14.89)	(2.56)
Asks for causal	0.63	0.37	0.48
explanation	(2.20)	(1.11)	(1.56)
Gives causal	0.78	0.63	0.60
explanation	(2.30)	(2.00)	(1.89)
Talks about reasons	0.80	0.29	0.30
for actions	(2.80)	(0.78)	(1.00)

Although Staff Position was not a significant factor in the case of Asks for Information, mean percentage scores for all three staff groups seem to be higher in the Small Group than in the Large Group (see Table 9). The scores for teachers (Group C) are lower than those for Groups A and B, regardless of Group Size, but the difference is more notable with a large group of children. Mean percentages for Asks for Information, in the Large Group, are 0.88% in Group C compared to 2.8% and 3.03% in Groups A and B, respectively.

Rapport

Most of the speech in the activity Rapport comes under the category of Monitors, where the adult acknowledges what the child has said but does not add anything herself (see Table 10). The two codes with the next highest mean percentage scores after Monitors are Social oil and Repeats what child has said. Agrees with child and Disagrees with child were used less frequently.

For the code Disagrees with child, the main effects of Staff Position and Group Size were both significant, as was the interaction between these two terms (see Table 11). Nursery officers in both Groups A and B were more likely to disagree with the children than were teachers. However, teachers' use of this code did not appear to be affected by group size whereas nursery officers were less likely to disagree with children when they were in a large group.

Table 10. Mean percentage scores and mean number of utterances (in brackets) for speech codes in Rapport

Group Size Small Group	Staff Position Group A	Group B	Group C
Agrees with child	1.11	1.63	1.90
	(4.30)	(6.00)	(6.33)
Disagrees with child	1.62	2.44	0.65
	(5.90)	(8.44)	(2.33)
Repeats what child	6.01	5.58	4.42
has said	(22.00)	(21.00)	(13.89)
Monitors	10.34	8.58	9.50
	(35.00)	(30.67)	(29.00)
Social oil	4.78	3.24	3.56
	(18.40)	(11.56)	(11.56)
Large Group	**Group A**	**Group B**	**Group C**
Agrees with child	1.28	1.23	1.64
	(4.60)	(4.44)	(5.56)
Disagrees with child	1.15	0.83	0.63
	(3.70)	(3.00)	(2.11)
Repeats what child	4.71	6.03	3.88
has said	(16.00)	(21.89)	(12.78)
Monitors	7.68	9.33	8.81
	(25.70)	(29.33)	(30.00)
Social oil	4.70	4.80	5.37
	(15.90)	(15.56)	(18.00)

Social oil showed a significant main effect for Group Size and for the interaction between Staff Position and Group Size (see Table 11). Teachers and nursery officers in Group B were more likely to use this code in the Large Group whereas nursery officers in Group A appeared not to be affected by group size. For Groups B and C, mean percentage scores in the Large and Small Groups respectively, were 4.8% and 3.24% for Group B; 5.37% and 3.56% for Group C. In contrast, scores for Group A were virtually equal (see Table 10).

Table 11. Results of two-way nonparametric ANOVAs on mean percentage scores for speech codes in Rapport

Speech code	Effect			p
Disagrees with child	Staff Position+	H=6.18	2df	0.05
	Group Size*	T=7	N=10	0.05
	Interaction+	H=12.05	2df	0.01
Social oil	Group Size*	T=2	N=10	0.01
	Interaction+	H=6.38	2df	0.05

+ - Kruskal-Wallis ANOVA

* - Wilcoxon matched-pairs signed-ranks test (2-tailed)

Unanalysed speech

Table 12. Mean percentage scores and mean number of utterances (in brackets) for categories of unanalysed speech

Group Size Small Group	Staff Position Group A	Group B	Group C
Songs, nursery rhymes	0.02	0.44	0.31
	(0.10)	(1.56)	(1.11)
Reads aloud	0.06	0.09	2.32
	(0.20)	(0.33)	(7.22)
Uncodable	0.32	0.28	0.30
	(1.40)	(1.00)	(1.11)
Inaudible	0.57	0.82	1.06
	(1.80)	(3.00)	(3.33)
Large Group	**Group A**	**Group B**	**Group C**
Songs, nursery rhymes	0.24	0.00	0.00
	(0.80)	(0.00)	(0.00)
Reads aloud	0.00	0.00	0.80
	(0.00)	(0.00)	(2.67)
Uncodable	0.20	0.03	0.11
	(0.60)	(0.11)	(0.33)
Inaudible	0.08	0.74	0.93
	(0.30)	(2.33)	(3.11)

A number of additional speech codes were used but were not included in any analyses. Table 12 shows the mean percentage scores and mean number of utterances for these codes. It can be seen that teachers in both Group Sizes appeared to do more reading aloud to the children, compared to nursery officers and that in the Large Group, no reading aloud was observed in Groups A and B. There were no songs and nursery rhymes in the Large Group for Groups B and C; in Group A too, the occurrence was low.

The mean percentage of speech categorised as Uncodable was fairly low, the highest score being 0.32% (Group A, Small Group). Inaudible speech occurred more frequently, the largest mean percentage being 1.06% (Group C, Small Group).

B. Effects of Staff Position and Group Size summarised

The effects of Staff Position and Group Size on individual staff speech codes, were assessed using two-way nonparametric analysis of variance (Bradley, 1968). The results are summarised in Table 13.

Overall, few speech codes were affected by Staff Position (see Table 13). Only three codes - Asks about intention, Gives information and Disagrees with child - in the activities of Management, Conversation and Rapport respectively, showed significant main effects for Staff Position. Teachers (Group C) were more likely to ask about the child's intention than were nursery officers in

Table 13. Summary of significant effects of Staff Position and Group Size

Speech code	Effect		
Management			
Asks about intention	Staff Position	H=11.27***	2df
Directs	Group Size	T=6*	N=10
Prohibits	Group Size	T=5**	N=10
Provides services	Group Size	T=4**	N=10
Draws attention			
Draws attention to self	Group Size	T=0***	N=10
Instruction			
Instructs	Interaction	H=6.7*	2df
Demonstrates	Interaction	H=8.03**	2df
Pretend play			
Asks for description of pretend play	Interaction	H=9.3***	2df
Conversation			
Gives information	Staff Position	H=8.27**	2df
	Group Size	T=4**	N=10
Rapport			
Disagrees with child	Staff Position	H=6.18*	2df
	Group Size	T=7*	N=10
	Interaction	H=12.05***	2df
Social oil	Group size	T=2***	N=10
	Interaction	H=6.38*	2df

* - $p<0.05$
** - $p<0.02$
*** - $p<0.01$

either Group A or B. Similarly, nursery officers in day nurseries with teachers (Group B) were more likely to ask about the child's intention than those officers in day nurseries without teachers (Group A).

The picture is reversed when it comes to Gives information. Teachers were *less* likely than nursery officers in either Group A or B to use this code. The same is true for the code Disagrees with child. In the Large Group, the pattern that we see is one in which staff in day nurseries without teachers disagree most with children, followed by nursery officers in the same nurseries as teachers and lastly, by teachers themselves.

Significant interactions between Staff Position and Group Size were obtained for a number of codes. In three cases - Disagrees with child, Asks for description of pretend play and Instructs - clear distinctions were found in the use of these codes by teachers compared to nursery officers. When they were with a large group of children, nursery officers in both Groups A and B were more likely to ask for descriptions of pretend play and less likely to disagree with children. Teachers, on the other hand, asked children to describe their pretend play more often in the small group. Moreover, the extent to which teachers disagreed with children did not appear to be affected by group size. As for the code Instructs, teachers were more likely to use this with a large group of children compared to a small group, whereas the reverse was true for nursery officers in Groups A and B.

Group Size was more often a significant factor with respect to the adult's speech than Staff Position. This was true for codes in the speech activities of Management (Directs, Prohibits and Provides services), Draws attention (Draws attention to self), Conversation (Gives information) and Rapport (Disagrees with child and Social oil). In all but two cases - Gives information and Disagrees with child - there was increased use of this type of speech in the Large Group. Thus, staff were more likely to tell children what to do, to prohibit their actions, to provide services, to draw attention to themselves and to use ritual forms of speech when they were with a large group of children. At the same time, they were less likely to give information or to disagree with the children.

The results provide support for the notion that nursery officers and teachers differ in their speech to children. However, the hypothesis that teachers would show a greater level of cognitive content in their speech to children than would nursery nurses, was not confirmed. The main effect of Staff Position was not significant for any of the codes in Draws attention or in Instruction, the two speech activities that are most clearly cognitively oriented.

CHAPTER NINE: RESULTS - THE RELATIVE USE OF STAFF SPEECH CODES

The previous chapter examined the effects of Staff Position and Group Size on individual categories of staff speech to children. This chapter explores the style of talk used by the adult. The extent to which some categories of speech are used consistently more or less often, was examined for members of each staff group with both a small and a large group of children. Analyses were carried out on the same data examined in Chapter Eight. The results are presented in three sections as follows: (a) the relative use of staff speech codes; (b) split half analysis of the data for each Staff Position with a small group of children; and (c) a summary of the style of speech used by staff to children.

A. The relative use of staff speech codes in each group size

Kendall's Test of Concordance was used to compare the rank orderings of speech codes for each combination of Staff Position and Group Size. The results are shown in Table 1. The values of W produced were highly significant in all cases, showing that there was a good deal of agreement between staff in their relative use of speech codes with children. This agreement was found for each staff group, with both small and large groups of children. Although there may be great variation in the

Table 1. Results of Kendall's Test of Concordance for each Staff Position and Group Size

	W	X^2	df	p
Small Group				
Group A	0.65	187.90	29	0.001
Group B	0.71	186.54	29	0.001
Group C	0.67	174.59	29	0.001
Large Group				
Group A	0.68	196.55	29	0.001
Group B	0.75	194.91	29	0.001
Group C	0.75	196.89	29	0.001

proportional use of speech activities, there is great similarity in the extent to which some speech codes are used *more* or *less* often with children.

The rank sums and range of speech codes for each Staff Position and Group Size are shown in Tables 2 to 7. Higher rank sums indicate increased usage so that the least often used speech codes are at the top of the table and the most often used codes, at the bottom. As Group A has ten members of staff in it compared to nine each in Groups B and C, rank sums across all three staff groups are not strictly comparable. Only those rank sums from Groups B and C can be readily compared with each other. The overall ranks of speech codes (from 1 to 30) however,

give some indication of their relative use across Staff Positions.

By examining the rank orderings of speech codes with a small group of children (Tables 2 to 4), we can see that in all three staff groups the most frequently used codes are: Social oil, Evaluates, Repeats what child has said, Directs, Monitors, Asks for description and Describes environment. These codes are ranked 24 to 30 for both Groups A and C. The range for the last three codes in all three staff groups is fairly narrow.

The least often used codes for each Staff Position with a Small Group are: Asks for evaluation, Assists act, Allocates roles and Articulates rules of pretend play. The code Talks about reasons for actions, occurs in the top group of six speech codes most rarely used in all Staff Positions.

There is greater variability between the three staff groups when we consider the middle section of speech codes. Asks about intention was ranked 5th for Group A, 11th for Group B and 12th for Group C, indicating increasing use from Group A to C (Tables 2 to 4). This ties in with the finding from Chapter Eight that Staff Position was a significant factor concerning Asks about intention (see p. 185).

Variability is also evident for two of the codes in Pretend play - Asks for description of pretend play and Describes pretend play. The range for both codes is wide in all staff groups. Asks for description of Pretend play

Table 2. Rank sums and range of speech codes in Group A with a small group of children

Speech code	Rank sum	Range
1) Asks for evaluation	43.5	2.5-5.5
2) Assists act	58.0	3.5-12.0
3) Allocates roles	59.5	3.5-15.5
4) Articulates rules (pretend)	63.5	4.0-15.5
5) Asks about intention	78.0	2.5-19.5
6) Reasons for action	83.5	2.5-18.5
7) Demonstrates	87.5	3.5-14.5
8) Asks for description (pretend)	107.0	4.5-23.5
9) Asks for causal explanation	112.0	4.0-22.5
10) Elaborates pretend play	119.5	4.0-28.0
11) Marks action	121.0	3.5-22.0
12) Indicates own intention	121.5	4.5-22.5
13) Describes pretend play	130.0	4.5-29.0
14) Agrees with child	142.5	2.5-21.0
15) Gives causal explanation	148.0	10.0-19.0
16) Instructs	153.0	4.5-29.0
17) Disagrees with child	153.5	4.5-22.0
18) Provides services	155.0	4.5-25.0
19) Negotiates	172.5	7.5-23.0
20) Prohibits	177.0	10.0-24.0
21) Asks for information	190.0	5.5-27.0
22) Draws attention to self	197.0	9.5-26.0
23) Gives information	205.0	15.5-28.0
24) Social oil	223.5	12.0-27.0
25) Evaluates	223.5	9.5-28.0
26) Repeats what child has said	232.0	14.0-28.0
27) Directs	251.5	15.0-29.0
28) Monitors	267.5	24.5-28.0
29) Asks for description	275.0	22.0-30.0
30) Describes environment	299.0	29.0-30.0

Table 3. Rank sums and range of speech codes in Group B with a small group of children

Speech code	Rank sum	Range
1) Asks for evaluation	37.5	2.5-7.0
2) Articulates rules (pretend)	37.5	2.5-7.0
3) Allocates roles	54.0	2.5-19.5
4) Assists act	64.5	3.0-17.0
5) Reasons for actions	77.0	3.5-13.5
6) Asks for description (pretend)	79.5	2.5-17.0
7) Asks for causal explanation	83.5	3.0-19.0
8) Marks action	84.5	3.0-18.5
9) Demonstrates	87.0	3.0-17.0
10) Elaborates pretend play	91.5	3.5-25.0
11) Asks about intention	99.0	4.5-22.0
12) Describes pretend play	112.0	4.0-24.0
13) Gives causal explanation	112.5	5.0-16.5
14) Indicates own intention	118.0	6.5-20.0
15) Prohibits	135.5	3.0-21.0
16) Instructs	136.0	4.5-25.5
17) Provides services	143.5	7.0-26.0
18) Negotiates	147.0	11.5-23.0
19) Agrees with child	155.0	12.5-21.5
20) Disagrees with child	161.0	8.5-25.5
21) Draws attention to self	164.5	10.5-22.0
22) Social oil	182.5	7.0-27.0
23) Asks for information	186.0	14.0-28.0
24) Gives information	210.0	13.0-27.5
25) Repeats what child has said	212.0	13.0-28.0
26) Evaluates	214.0	18.0-28.0
27) Monitors	235.0	24.0-28.0
28) Directs	236.0	20.5-29.0
29) Asks for description	260.0	28.0-30.0
30) Describes environment	269.0	29.0-30.0

Table 4. Rank sums and range of speech codes in Group C with a small group of children

Speech code	Rank sum	Range
1) Allocates roles	45.0	3.0-7.5
2) Asks for evaluation	47.5	3.0-12.5
3) Assists act	55.0	3.0-15.0
4) Articulates rules (pretend)	60.5	4.0-18.5
5) Demonstrates	68.5	3.0-12.5
6) Reasons for actions	72.5	3.0-16.0
7) Marks action	75.5	4.0-13.5
8) Disagrees with child	87.5	2.5-17.0
9) Asks for causal explanation	96.0	5.0-19.0
10) Gives causal explanation	96.5	5.0-16.0
11) Elaborates pretend play	99.5	4.0-28.0
12) Asks about intention	106.0	2.5-27.0
13) Indicates own intention	121.5	4.5-19.0
14) Asks for description (pretend)	138.5	4.0-25.5
15) Instructs	140.0	9.5-22.0
16) Agrees with child	141.0	6.0-20.0
17) Negotiates	148.5	4.5-26.0
18) Asks for information	153.0	7.0-26.0
19) Prohibits	155.5	2.5-24.0
20) Gives information	161.0	10.5-27.0
21) Describes pretend play	163.5	5.0-30.0
22) Provides services	174.5	11.5-25.5
23) Draws attention to self	176.5	11.0-25.0
24) Social oil	194.5	18.0-27.0
25) Evaluates	203.5	19.5-25.5
26) Repeats what child has said	204.5	17.0-26.0
27) Directs	237.5	15.5-29.0
28) Monitors	238.0	23.0-28.5
29) Asks for description	254.5	27.0-29.0
30) Describes environment	269.0	29.0-30.0

was ranked 8th and 6th respectively in Groups A and B, but 14th in Group C. In the case of Describes pretend play, ranks were 13 for Group A, 12 for Group B and 21 for Group C. There is much less variability across staff groups for the code Elaborates pretend play.

A marked difference in ranks can be seen between Group C on the one hand and Groups A and B for the code Disagrees with child. The ranks are 8 for Group C compared with 17 and 20 for Groups A and B respectively (Tables 2 to 4). Disagrees with child was another speech code which was found to be significantly affected by Staff Position (see p. 185).

Speech codes that are used relatively frequently across Staff Positions - between ranks 15 and 24 - include Management codes such as Negotiates, Prohibits and Provides Services. Also within this band are categories of Conversation, such as Asks for Information and Gives information.

Complex reasoning codes such as Talks about reasons for action and Asks for Causal explanation are not often observed. Group C (teachers) has the lowest rank for Gives causal explanation - 10, compared to 13 and 15 in Groups B and A respectively. The three staff groups are ranked almost equally for Instructs (see Tables 2 to 4).

Tables 5 to 7 show the rank orderings of speech codes for Groups A to C with a large group of children. The most frequently used codes in all three staff groups are: Evaluates, Social oil, Draws attention to self,

Monitors, Asks for description, Directs and Describes environment. The order of usage of these codes is almost identical in Groups A and C.

One of the categories most frequently used with a large but not with a small group of children is Draws attention to self. Whereas this code was ranked between 21 and 23 in the Small Group, it is ranked at 26 for all Staff Positions in the Large Group. Group Size was shown to be a significant factor affecting the use of Draws attention to self (see p. 185).

The other codes most frequently used with a Large Group of children are also most often used in the Small Group. These are the codes: Evaluates, Social oil, Monitors, Asks for description, Directs and Describes environment. The ranks in both Group Sizes are between 22 to 30.

Speech codes used least frequently in the Large Group are almost all the same as those used rarely in the Small Group. For example, the codes Allocates roles, Asks for evaluation, Assists act and Articulates rules of pretend play are all in the top five group of rarely used codes, for both Group Sizes.

The code Elaborates pretend play was used more frequently in Groups A and C - ranked 11th and 13th, respectively - than in Group B, where it was ranked 3rd. As was the case in the Small Group, the use of other codes in Pretend play was variable, Group B showing the lowest rankings for both Asks for description of pretend

Table 5. Rank sums and range of speech codes in Group A with a large group of children

Speech code	Rank sum	Range
1) Allocates roles	47.0	2.5-11.5
2) Asks for evaluation	54.0	2.5-13.0
3) Assists act	58.5	2.5-16.0
4) Articulates rules (pretend)	59.5	3.0-19.5
5) Asks for causal explanation	91.5	3.0-16.5
6) Asks about intention	95.0	4.0-17.5
7) Marks action	97.0	4.0-14.5
8) Demonstrates	103.5	3.0-19.0
9) Gives causal explanation	105.5	4.0-19.0
10) Reasons for actions	106.0	4.5-17.0
11) Elaborates pretend play	109.0	3.0-26.5
12) Disagrees with child	119.0	1.0-24.0
13) Indicates own intention	119.0	2.5-17.5
14) Agrees with child	124.5	4.0-21.0
15) Asks for information	136.0	3.0-30.0
16) Instructs	141.0	5.0-27.0
17) Asks for description (pretend)	151.5	4.0-26.5
18) Gives information	165.5	11.0-27.0
19) Negotiates	182.5	9.5-26.0
20) Describes pretend play	184.0	5.5-29.0
21) Provides services	200.5	14.5-27.0
22) Prohibits	203.5	15.5-28.0
23) Repeats what child has said	218.5	13.5-28.0
24) Evaluates	226.5	18.0-26.0
25) Social oil	227.0	16.5-26.0
26) Draws attention to self	237.5	21.0-26.0
27) Monitors	259.5	21.0-29.0
28) Asks for description	266.5	17.5-30.0
29) Directs	275.0	22.0-29.0
30) Describes environment	296.0	27.0-30.0

Table 6. Rank sums and range of speech codes in Group B with a large group of children

Speech code	Rank sum	Range
1) Allocates roles	40.5	3.5-8.0
2) Articulates rules (pretend)	40.5	3.5-8.0
3) Elaborates pretend play	47.0	3.5-10.0
4) Asks for evaluation	55.5	3.5-9.5
5) Assists act	58.0	3.5-12.5
6) Demonstrates	71.5	3.5-15.5
7) Reasons for actions	82.0	3.5-17.5
8) Asks for causal explanation	87.0	3.5-16.5
9) Asks for description (pretend)	88.5	3.5-20.5
10) Gives causal explanation	103.5	4.0-15.0
11) Describes pretend play	105.0	3.5-25.0
12) Instructs	109.0	4.5-22.0
13) Marks action	111.0	5.5-16.5
14) Disagrees with child	118.0	3.5-22.0
15) Agrees with child	124.0	3.5-21.0
16) Indicates own intention	143.0	4.0-21.5
17) Asks about intention	149.0	12.0-22.0
18) Negotiates	150.5	8.0-25.5
19) Asks for information	152.0	4.5-29.0
20) Provides services	166.0	12.0-28.0
21) Prohibits	175.0	8.0-25.0
22) Gives information	184.5	4.5-27.5
23) Evaluates	195.5	17.0-27.0
24) Social oil	204.0	17.5-28.0
25) Repeats what child has said	209.0	16.5-28.0
26) Draws attention to self	220.0	20.5-29.0
27) Directs	235.5	23.0-29.0
28) Monitors	240.5	24.0-28.0
29) Asks for description	249.5	25.5-29.0
30) Describes environment	270.0	30.0-30.0

Table 7. Rank sums and range of speech codes in Group C with a large group of children

Speech code	Rank sum	Range
1) Allocates roles	33.0	2.0-5.0
2) Asks for evaluation	40.5	3.0-6.0
3) Articulates rules (pretend)	50.0	2.0-10.0
4) Assists act	53.5	3.0-11.5
5) Reasons for actions	66.5	3.0-17.5
6) Asks for causal explanation	80.0	3.0-17.5
7) Gives causal explanation	81.5	2.0-22.0
8) Demonstrates	84.0	3.5-16.0
9) Marks action	86.5	2.5-14.5
10) Gives information	91.0	2.5-20.0
11) Disagrees with child	93.5	3.5-17.0
12) Asks for information	96.0	4.5-21.0
13) Elaborates pretend play	102.5	3.0-29.0
14) Asks for description (pretend)	118.0	5.0-22.0
15) Indicates own intention	133.5	10.0-18.5
16) Agrees with child	139.0	4.5-21.0
17) Describes pretend play	154.5	5.0-27.0
18) Asks about intention	166.5	14.5-24.0
19) Instructs	171.0	10.0-26.0
20) Prohibits	171.5	11.5-26.0
21) Negotiates	174.0	12.0-24.0
22) Repeats what child has said	182.0	12.5-27.0
23) Provides services	192.5	12.5-27.5
24) Evaluates	200.0	18.5-26.0
25) Social oil	213.0	18.5-27.0
26) Draws attention to self	213.5	17.0-28.0
27) Monitors	238.0	18.5-29.0
28) Directs	241.5	24.0-29.0
29) Asks for description	248.0	22.0-29.0
30) Describes environment	270.0	30.0-30.0

play and Describes pretend play.

Groups B and C both increased their use of Asks about intention in the Large Group, from rank 11 to 17 for Group B and rank 12 to 18 for Group C. The change for Group A was smaller, from rank 5 to 6. Conversation codes such as Asks for information and Gives information were mixed in with Management codes such as Negotiates, Provides services and Prohibits in the Small Group, but this was not the case for Group C in the Large Group. The Management codes retained similar positions in the Large Group across Staff Positions - 18 to 23 - but Asks for information and Gives information were used less frequently (ranked at 12 and 10) by teachers in this Group Size. The same codes were ranked at 15 and 18 respectively in Group A; 19 and 22 in Group B.

Complex conversational codes such as Talks about reasons for actions, Asks for causal explanation and Gives Causal explanation were not often observed in this Group Size, as was the case with a small group of children. Similarly, Demonstrates and Marks action were used infrequently, in both Large and Small Groups.

B. Split-half analysis

Split-half analysis was carried out on rank orderings of speech codes for all Staff Positions in the Small Group. The first and second 10-minute recording segments were compared using Kendall's Test of Concordance. The results were highly significant (see

Table 8) indicating that, as was the case for the sample as a whole, there was substantial agreement amongst individuals in their relative use of speech codes. This agreement was obtained in each staff group with a small group of children, for each half of the data.

Table 8. Results of Kendall's Test of Concordance on speech codes in the first and second 10-minute recording segments with a small group of children

	W	X^2	df	p
First 10 minutes				
Group A	0.60	173.18	29	0.001
Group B	0.68	178.54	29	0.001
Group C	0.62	160.65	29	0.001
Second 10 minutes				
Group A	0.54	157.61	29	0.001
Group B	0.63	165.61	29	0.001
Group C	0.62	162.12	29	0.001

Rank sums and ranks of speech codes in each of the two 10-minute recording segments are shown in Tables 9 to 11. The overall ranks of speech codes from 1 to 30, are very similar for both recording periods within each staff group. Moreover, the pattern for each half of the data in each Staff Position, mirrors that found for the sample as a whole. As we would expect from the earlier analysis of ranks, the speech codes used most frequently are: Repeats

Table 9. Rank sums and ranks (in brackets) of speech codes in the first and second 10-minute audio-recording segments for Group A with a small group of children

Speech code	First 10 min.	Second 10 min.
Asks for evaluation	(1.5) 61.0	(1) 67.5
Reasons for actions	(1.5) 61.0	(10) 120.0
Allocates roles	(3) 69.5	(4.5) 82.0
Articulates rules of pretend play	(4) 73.5	(4.5) 82.0
Assists act	(5) 74.0	(2) 76.5
Asks about intention	(6) 88.5	(6) 91.5
Demonstrates	(7) 106.5	(3) 78.5
Marks action	(8) 109.0	(13) 133.0
Asks for causal explanation	(9) 115.5	(11) 125.0
Elaborates pretend play	(10) 116.0	(8) 104.0
Asks for description of pretend play	(11) 124.5	(7) 101.0
Indicates own intention	(12) 127.0	(12) 132.0
Instructs	(13) 134.0	(15) 147.5
Describes pretend play	(14) 144.5	(9) 114.0
Agrees with child	(15) 146.5	(14) 140.5
Gives causal explanation	(16) 148.0	(17.5) 149.5
Provides services	(17) 149.5	(16) 149.0
Prohibits	(18) 156.5	(22) 190.0
Asks for information	(19) 159.0	(20) 170.0
Disagrees with child	(20) 163.5	(19) 156.0
Negotiates	(21) 183.5	(17.5) 149.5
Draws attention to self	(22) 184.0	(25) 207.5
Gives information	(23) 187.0	(21) 179.0
Evaluates	(24) 221.5	(24) 207.0
Social oil	(25) 234.0	(26) 214.0
Repeats what child has said	(26) 234.5	(23) 205.0
Directs	(27) 247.0	(27) 245.5
Asks for description	(28) 266.5	(29) 273.0
Monitors	(29) 267.0	(28) 270.0
Describes environment	(30) 297.5	(30) 290.0

Table 10. Rank sums and ranks (in brackets) of speech codes in the first and second 10-minute audio-recording segments for Group B with a small group of children

Speech code	First 10 min.	Second 10 min.
Asks for evaluation	(2.5) 54.0	(2) 52.5
Articulates rules of pretend play	(2.5) 54.0	(2) 52.5
Allocates roles	(2.5) 54.0	(4) 69.5
Elaborates pretend play	(2.5) 54.0	(12) 113.5
Asks for description of pretend play	(5) 70.5	(9) 91.0
Assists act	(6) 73.5	(5) 70.5
Reasons for actions	(7) 89.5	(6) 80.0
Asks for causal explanation	(8) 100.0	(7) 82.5
Marks action	(9) 100.5	(8) 90.0
Describes pretend play	(10) 101.0	(15) 134.0
Indicates own intention	(11) 108.5	(16) 135.0
Gives causal explanation	(12) 109.5	(13) 115.5
Asks about intention	(13) 110.5	(10) 94.5
Prohibits	(14.5) 113.5	(18) 149.0
Demonstrates	(14.5) 113.5	(2) 52.5
Negotiates	(16) 134.5	(20) 157.0
Provides services	(17) 135.5	(17) 144.5
Instructs	(18) 143.5	(14) 131.0
Asks for information	(19) 162.0	(23) 188.5
Draws attention to self	(20) 163.0	(21) 168.0
Disagrees with child	(21) 164.0	(19) 156.0
Agrees with child	(22) 176.5	(11) 111.5
Social oil	(23) 179.5	(25) 191.5
Gives information	(24) 200.0	(22) 182.0
Repeats what child has said	(25) 212.5	(26) 200.5
Evaluates	(26) 217.0	(24) 190.0
Monitors	(27) 229.5	(28) 244.5
Directs	(28) 232.0	(27) 223.0
Asks for description	(29) 260.0	(29) 252.0
Describes environment	(30) 269.0	(30) 262.5

Table 11. Rank sums and ranks (in brackets) of speech codes in the first and second 10-minute audio-recording segments for Group C with a small group of children

Speech code	First 10 min.	Second 10 min.
Allocates roles	(1) 54.5	(3) 59.5
Assists act	(2) 61.0	(4) 65.5
Asks for evaluation	(3) 63.0	(1.5) 53.0
Demonstrates	(4) 65.5	(5) 78.5
Disagrees with child	(5) 72.0	(11) 109.5
Reasons for actions	(6) 73.0	(7) 86.0
Articulates rules of pretend play	(7) 78.5	(1.5) 53.0
Marks action	(8) 82.5	(6) 82.5
Asks for causal explanation	(9) 87.0	(12) 110.0
Gives causal explanation	(10) 106.0	(9) 98.5
Elaborates pretend play	(11) 109.5	(10) 100.0
Instructs	(12) 116.5	(17) 141.0
Asks about intention	(13) 120.0	(8) 86.5
Agrees with child	(14) 124.5	(21) 164.5
Indicates own intention	(15) 136.0	(14) 123.0
Negotiates	(16) 151.0	(18) 145.0
Prohibits	(17) 152.0	(22) 171.0
Asks for information	(18) 155.0	(15) 137.0
Asks for description of pretend play	(19) 157.5	(13) 111.5
Draws attention to self	(20) 159.0	(24) 191.0
Gives information	(21) 165.0	(19) 150.5
Describes pretend play	(22) 169.5	(16) 139.5
Evaluates	(23) 170.0	(26) 207.0
Provides services	(24) 179.5	(20) 152.5
Repeats what child has said	(25) 189.0	(25) 199.0
Social oil	(26) 199.5	(23) 187.5
Directs	(27) 234.5	(27) 230.5
Monitors	(28) 237.5	(28) 237.0
Asks for description	(29) 250.5	(29) 247.0
Describes environment	(30) 266.0	(30) 268.0

what child has said, Social oil, Directs, Monitors, Asks for description and Describes environment. Speech codes used least often include Asks for evaluation, Articulates rules of pretend play and Allocates roles.

For a few codes in Groups A and B, there are noteable differences in ranks from one 10-minute segment to the other. Talks about reasons for actions is used far more often for Group A in the second recording period than in the first. In Group B, Demonstrates and Agrees with child are used more frequently in the first 10-minute period whereas Elaborates pretend play is used more regularly in the second.

Overall, however, there is a close match between the ranks for speech codes in each recording period. The general pattern observed is the same as that for the whole sample, thus replicating the findings for this group size.

C. The relative use of staff speech codes summarised

Rank orderings of speech codes for each combination of Staff Position and Group Size were examined using Kendall's Test of Concordance. The results show that teachers and both groups of nursery officers are str-ikingly similar in their style of speech to children.

For all three staff groups, the most frequently used codes in the small group were: Social oil, Evaluates, Repeats what child has said, Directs, Monitors, Asks for description and Describes environment. All these codes,

except for Repeats what child has said, were also most often used with a large group of children. In addition, Draws attention to self was used frequently by staff in this group size.

The codes used least often in each staff group with a small group of children were: Asks for evaluation, Assists act, Allocates roles, Articulates rules of pretend play and Talks about reasons for action. The same was true for all staff with a large group of children, though there was some variation across Staff Position in the use of Talks about reasons for actions.

Greater variability between staff groups can be seen regarding the middle section of speech codes. For example, the ranks for categories in pretend play, such as Asks for description of pretend and Describes pretend play, occurred within a wide range. Similarly, codes for which a significant main effect was found for Staff Position in Chapter Eight e.g. Asks about intention, Disagrees with child, also occurred within a wide range.

In general, the style of staff speech to children is one characterised mainly by management, maintaining rapport, description of the immediate environment and questioning children about the here-and-now. There is little to do with the shared doing or making of things and even less by way of logical or causal reasoning. This style of talk was found for all three staff groups - teachers and both groups of nursery officers.

CHAPTER TEN: DISCUSSION

This research has focused on two groups of local authority day nurseries - those in which teachers were seconded, and nurseries without teachers on their staff. The aims of the project were to compare the cognitive and social behaviour of children in the two nursery groups, and to compare the child-oriented speech of teachers and nursery nurses. It was predicted that the cognitive content of speech to children would be higher for teachers than for nursery nurses. With regard to children's behaviour, cognitive levels were predicted to be higher in those attending day nurseries with teachers, compared to children in day nurseries without teachers.

Children's behaviour and staff involvement

The presence of a teacher in the nursery appeared to have little direct impact on children's behaviour. Complex cognitive operations and appropriate use of materials were not found more often in day nurseries with teachers. In fact, the converse was found with respect to two categories: thematic and symbolic play. Thematic behaviour, which involved carrying out a series of operations in a necessary order and co-ordinating these around an underlying theme, for example, domestic play involving shopping and cooking, was significantly more likely to occur in day nurseries without teachers. Symbolic play in general, was also found more often in nurseries without teachers. The prediction that higher

cognitive levels of behaviour would be found in children from day nurseries with teachers, was therefore not confirmed.

The finding that symbolic play was *less* likely to occur during either staff-structured activities or play in which a member of staff was present, is consistent with previous research. Huston-Stein et al, (1977), in a study of five preschool centres in Headstart programmes, found a significant negative correlation between the degree of structure (defined as the amount of adult-directed activity) and the frequency of imaginative play. In this country, children in centres implementing the High/Scope curriculum subsequently showed a decrease in pretend play (Sylva et al, 1986) and Smith and Connolly (1980) found that fantasy play was less frequent in their organised-activities condition compared with free-play. Whilst the results of these studies suggest that imaginative play occurs less often in structured curricula, the reverse is true for curricula embodying a great deal of sociodramatic play tutoring (e.g. Smilansky, 1968). In the absence of such tutoring, however, fantasy play seems to occur less often during activites structured by staff.

On the whole, similar patterns of behaviour were found in both groups of nurseries. Children were most likely to engage in associative participation, to make appropriate use of objects rather than partial or symbolic use and to repeat one or two simple actions.

They were least likely to be engaged as onlookers, to be unoccupied, to make indiscriminate use of materials or to show a lack of integration in their actions. However, complex forms of behaviour, such as co-operative engagement and behaviour integrated around a superordinate theme, occurred infrequently. In general, the level of complexity of play was simple and repetitive. The results are typical of those found from observational studies of children's behaviour at preschool (e.g. Meadows and Cashdan, 1983; Tizard, B. et al, 1976a). Tizard, B. et al., (1976b) also found that the presence of trained teachers in the nursery was not, in itself, associated with differences in children's behaviour.

Staff involvement turned out to be more influential, in terms of its association with children's behaviour, than whether or not a teacher was present in the nursery. However, the total amount of staff involvement with children was low. Only about one third of the child's time was spent in some form of participation with staff and one-to-one engagement with adults was extremely rare. This is similar to the findings reported by Cleave et al, (1982), in their comparative study of children's experiences in differing forms of preschool provision. In day nurseries, just over a third of the adult's time was spent in involvement with one or more children, compared to more than half the time spent supervising all children. The authors comment that 'this high incidence of non-involvement (in day nurseries) is surprising in

view of their high adult-child ratios' (p. 83). McGuire and Richman (1987) found that, on average, children in the day nurseries they studied spent less than three minutes per hour in one-to-one involvement with staff.

In contrast, Sylva et al., (1986) showed that children in preschool centres, prior to implementation of the High Scope curriculum, spent nearly half of their time in contact with adults. McGuire and Richman (op cit) suggest that one reason why staff in day nurseries spend so little time in sustained interaction with children, is the presence of many children with difficult and aggressive behaviour. Staff may have avoided sustained interaction in order to monitor any conflicts or trouble that might occur between children.

Figures reported for the total proportion of time that children spend in contact with staff in day nurseries, have varied from 47% (Ferri et al, 1981) to just over 17% (Cleave et al, 1982). The discrepancy may be partly explained by the relative proportions of children with behavioural and emotional problems in the nurseries concerned. The greater the proportion of such children in the nursery, the less staff would be inclined to become involved with children.

It should be noted that when children *were* involved with staff, in the present study, they were *least* likely to be engaged in complex cognitive operations, symbolic play, or co-operative participation. Children were much more likely to be observed carrying out repetitive and

routine operations. This is contrary to the finding by Sylva et al, (1980) that challenging play occurred more often when children were interacting with an adult.

A study by Clift et al, (1980) may throw some light here. When comparing the uses made by staff (in nursery schools and classes) of activities in which they were involved with children, the researchers found that the majority of nursery assistants (staff with the NNEB qualification) were using activities as *ends* in themselves. The teachers, in contrast, generally used activities as a *means* to a variety of ends. The positive correlation, in the present study, between routine behaviour and adult-led activities, suggests that these activities were used as ends in themselves. This has important implications, both for the potential benefits that children may derive from attendance at the day nursery, and for the ways in which staff work with children.

If activities are predominantly used as ends in themselves, as appears to be the case in the present study, then staff are more likely to place emphasis on the individual components of the activity being *actually* carried out rather than *why* they should be carried out, or alternative ways of arriving at the same end. Children would therefore be unlikely to have their horizons extended through this type of involvement with staff. This point will be considered further when discussing the findings regarding staff speech to children.

The presence of large numbers of children in the day nursery with behavioural or emotional problems has already been suggested as one reason for the lack of sustained adult involvement with children. At the same time, dealing with such problems would place staff under a great deal of pressure. It is possible that staff cope with this pressure by using play activities as a way of 'managing' children or keeping them occupied.

One way of reducing the pressure that nursery officers face in the day nursery environment would be to increase the support available to staff. Such an approach seems merited by McGuire and Richman's (1987) finding that when a staff group is supported by their superiors and encouraged to be welcoming to parents, they are also likely to be stimulating and positive with the children. Supportiveness to staff, in that study, referred to the extent to which the officer-in-charge and deputy made themselves available for working with the children, and the amount and quality of practical advice for staff, either through staff meetings or individual supervision. In order to be of help to the children in day nurseries, it would seem that staff need to be adequately supported themselves.

Explanations of staff behaviour in terms of lack of support and pressure on staff, however, do not seem to apply so readily to the situation in nursery schools and classes, the setting in which Clift et al, (1980) found differences in the use of activities by teachers and

nursery assistants. Other factors may be more relevant here. The aims that staff have of their work with children would appear to be of central importance: teachers may be more concerned with demonstrating the *potential* of activities to children whereas nursery assistants may place greater emphasis on children's ability to carry out *instructions.* Pedagogical factors such as these are also likely to operate in the day nursery, though the relative importance of situational and pedagogical factors may vary in nursery schools and classes compared to day nurseries.

The greater disparity in the extent of adult involvement with girls and boys in day nurseries without teachers, compared to those with teachers, is an interesting finding. A number of studies have shown that staff in preschool react differently to boys and girls (e.g. Fagot, 1978). These differences in response appear to be largely a function of the girls' tendency to stay close to staff (who are almost always women), presumably inviting adult interaction (Fagot, 1978; Serbin et al, 1973). Teachers respond to both sexes, however, when they are engaged in schoool-like activities, such as drawing, painting or cutting (Fagot, 1978; Etaugh et al, 1975; Fagot and Patterson, 1969). The finding that staff presence was equally likely with girls as it was with boys, in nurseries with teachers, could have been due to a number of reasons: school-like activities were provided more often in this nursery group; boys in this nursery

group were engaged in such activities more often than boys in nurseries without teachers; staff in nurseries with teachers specifically encouraged boys to become involved in activities such as drawing, painting and cutting.

Staff speech to children

Very few speech codes were found to vary according to staff position; the prediction that the cognitive content of speech to children would be greater for teachers than for nursery nurses was not confirmed. Rather than differences being found in the areas of instruction or drawing the child's attention to aspects of the environment, the only three codes that were used differentially by teachers and nursery officers were concerned with conversation, maintaining rapport with children and management i.e. working out what to do next. In addition, the three groups of staff did not differ significantly in terms of their total amount of speech.

The findings differ from previous research on teachers and nursery nurses in combined nursery centres (Ferri et al, 1981). In the latter study, teachers were more frequently involved in verbal interaction with the children and were more likely to use cognitively-oriented language. They were also more often observed in 'social' verbal interaction with children than were the nursery nurses. Categories used to describe cognitively-oriented talk were similar to those used in the present study: questions child for information; extended questioning;

gives information, reasons, explains; suggests activity to child. Differences between coding schemes, therefore, are unlikely to account for the differences in results.

There are a number of possible reasons why similar findings were not obtained in the present study. First, the non-random method of selecting nursery nurses for the present research is likely to have resulted in a group that is not representative of nursery nurses in general. The nursery officers recorded may have been more self-confident and motivated in their work with children, and therefore more willing than other staff in the nursery to participate in the audio-recordings. The greater motivation of the participants may have been manifested in more speech of an educational and generally interactive nature.

If this is the case, the implication is that staff who are *enabled* to feel more confident in their work will interact more positively with children. Increasing the support to *all* nursery officers and finding ways in which to improve morale generally, therefore, may have a greater influence on the educational ethos of a nursery than the presence or absence of a teacher. Furthermore, if greater educational opportunities are to be made truly available to children in day nurseries, this may be more likely to happen if all staff are in a position to provide such opportunities, for example, through changes in the initial training of nursery nurses, or by providing in-service training that addresses the

potentially educational aspects of the work of nursery nurses. Such a situation would be preferable to the existing one in which 'education' is expected to be provided predominantly by one individual i.e. the teacher.

A second reason for the lack of differentiation in cognitively-oriented speech by teachers and nursery officers to children, may have been the audio-recording process itself. This may have focused attention on speech and the activities available for children. As a result, staff would have been more likely to interact with children and attempt to engage them in 'cognitive' activities. The research process itself may have imposed demands on staff, resulting in a specific interpretation of their work role - one in which the 'educational' nature of that role is highlighted. It is possible that this effect was more marked for nursery officers than for teachers. Whereas education is something that teachers 'do' anyway, nursery officers taking part in the audio-recordings were, effectively, allocated an 'educational' role.

Although such an effect could be seen as a methodological shortcoming of the study, it could also be interpreted as suggesting that the similarity of speech to children, in the three staff groups, has resulted from shared conceptions by teachers and nursery officers of their work roles. This interpretation is consistent with the finding that differences between the behaviour of

senior and junior staff in residential nurseries were due to role allocation rather than training (Tizard, B. et al, 1972). It is also consistent with the argument that the strength with which staff believe that they should influence children's cognitive development has a greater influence on their behaviour than their training background (Tizard, B. et al., 1976c). The implications of this argument, the authors suggest, are that 'altering staff conceptions about their role may be more important than giving them extra training' (Tizard, B. et al, 1976c, p. 30-31). Investigation of factors affecting staff percep-tions of what constitutes their role in preschool, thus appears to be an important area for further study.

So far, possible reasons for the *lack* of difference between teachers' and nursery officers' speech to children have been discussed. Nevertheless, differences between staff groups occurred. One such difference was the greater tendency for nursery officers, compared to teachers, to talk about events or people not present in the immediate environment. Staff would have to know about such events before being able to speak about them to the children and there may a number of reasons why nursery officers did this more often than teachers. For example, nursery officers may find out about the child's family life or other events through involvement with parents, whereas teachers may interact with parents less often; children may spend more time overall with nursery

officers and may have a greater chance to tell them, rather than the teacher, about outside events; nursery officers may be more interested in talking about such events than teachers. Cleave et al, (1982) found that interactions of a personal or social nature were rarely initiated by staff in infant and nursery education but occurred far more often, with individual children, in playgroups and day nurseries.

Differences among staff groups were also found regarding disagreement with children as well as the extent to which staff were likely to ask children about their intentions. Teachers were more likely to ask about the child's intention than nursery officers. A similar relationship was found regarding the two groups of nursery officers: those in day nurseries with teachers were more likely to ask about the child's intention than officers in nurseries without teachers. The picture is reversed when it comes to disagreement with the child. Teachers were *less* likely than either group of nursery officers to use this code.

With respect to teachers, these findings are consistent with a tradition in which the nursery (school or class) is a 'child-centred' environment. Here, the emphasis is on making provision for exploration and play with a wide variety of objects, and the role of the teacher in this environment is supportive rather than instructive (cf Dowling, 1976; Parry and Archer, 1974; Lowenfield, 1935). It is not surprising, therefore, that

in the present study, teachers should be the ones most likely to ask about the child's intention i.e. what he or she would like to do next. Similarly, teachers may be less likely to disagree with children if they see this as a way of imposing 'structure' on the child. Woodhead (1976b) suggests that preschool teachers are often unhappy about the notion of structure, which they see as synonymous with extrinsic motivation, externally imposed discipline and highly teacher-centred methods of instruction such as Bereiter and Engelmann (1966).

The ideology of free play as a means of promoting children's learning has come under much criticism (Tizard, B., 1977). One of the disadvantages of a child-centred play environment is the tendency for staff to see their *role* in terms of the provision of play activities. The restriction of the adult's role to one of watching over and talking to the children precludes engagement in adult activities which might serve as interesting and challenging models to children (Tizard and Hughes, 1984). When such a tendency operates in the context of a day nursery, where a high proportion of the children show behavioural or emotional problems, the consequences may be far from intended. One possible outcome suggested by the present research is a situation in which staff use play activities as a way of 'managing' children, rather than extending their intellectual horizons. The concentration of large numbers of children with social problems of varying degree, coupled with the emphasis on

'learning through play', appear to mitigate against providing real educational opportunities for children in day nurseries.

Furthermore, since conversations between staff and children focus very much on play, much of the talk is about the here-and-now. In the present study, a good deal of agreement was found among all three staff groups, in each group size, regarding their relative use of speech codes. Questions and descriptions of the immediate environment, for example, what the child is doing, looking at or working with, were among the most frequently occurring codes. Management of children's activities, in terms of effectively telling them what to do, was also high on the list. Also common were monitoring and repeating what the child has just said. Whilst these last two ways of talking to children are important in sustaining interesting conversations with young children, they can also be used to prevent interaction (Wood et al, 1980).

Very little adult talk in the present research was concerned with joint action, showing children how to do things or helping them with activities. Complex reasoning, such as talking about why things happen or asking the children for causal explanations, was extremely rare. Similar results were found by Tizard and Hughes (1984) in nursery schools and classes, and by Wood et al, (op cit) in playgroups. Tizard and Hughes, (op cit) make a number of suggestions for change in the

preschool in order to meet children's needs more adequately. Instead of the present emphasis on fostering play and on questioning children about their play, 'a higher priority would have to be given to widening the children's horizons, extending their general knowledge and on listening to them talk' (Tizard and Hughes, op cit, p. 261). Such a recommendation becomes even more salient when the findings on group size are considered.

Group size appeared to be a more influential factor regarding adult speech to children, in this study, than whether the staff member was a teacher or nursery officer. Staff were more likely to tell children what to do, to prohibit their actions, to provide services, to draw attention to themselves and to use ritual forms of speech when they were with a large group of children. They were, at the same time, less likely to disagree with the children. It is likely that such disagreements tended to occur more often during instructional-type activities. Such activities were less likely to be seen when staff were with a large group of children and there would therefore be fewer disagreements with children in this group size.

These results are in agreement with those of other studies (e.g. Schaffer and Liddell, 1984; Ruopp et al, 1979). Schaffer and Liddell (1984) focused on adult-child interaction, in day nurseries, involving a specially set-up task. The study differs in a number of ways from the present one, for example in the size of groups compared,

the activities and the measures used. Staff used significantly more prohibitives in the group condition (four children) than in dyads. The present research also shows that prohibition of children's actions is more common with a larger group of children.

Group size was one of the characteristics of day care centres examined by the National Day Care Study, in an effort to understand how variation in programmes affects children's experiences (Ruopp et al, op cit). As as indicator of quality day care, group size was more powerful than staff-child ratio. With a large group of children, the adult is under increased pressure. In the present study, the stylistic differences in speech found as a result of the variation in group size, suggest that staff cope with the increased pressure, to some extent, by 'disengagement' when they have to work with large groups of children. Tizard, B. et al, (1980) showed that the contexts in which conversations between staff and children were longest were those of story-reading and joint adult play, both of which are more likely to occur with small groups of children. Increased use of small-group work in the day nursery, whether by nursery officers or teachers, would therefore not only be of benefit for children but would also be less stressful for staff.

Conclusions

Split-half analyses were carried out on the observations of children's behaviour as well as on the

categories of staff speech to children. In both studies, the results for each half of the data were broadly similar, thus replicating the findings. This feature of the research places significant results on a more secure footing; the same is true for an absence of trends in both groups. Consequently, the possibility of spuriously accepting results as 'significant' or 'non-significant' is reduced.

The research has shown that the presence or absence of a teacher does not, in itself, significantly influence the cognitive complexity of children's behaviour. Other factors, such as the number of children staff have to work with, the nature of their involvement with children, and the way in which the nursery operates as an institution (cf Tizard, B., 1974) appear to be more salient. For example, it is likely that the degree of interest in educational activities shown by the officer-in-charge, and the extent of provision of such activities by nursery staff would be salient influences on children's behaviour. Such features may have affected the behaviour of children, regardless of whether or not a teacher was working in the nursery. Other issues that may have been relevant include the aims and philosophy of the nursery, the perceived role of the teacher (if present) and her day-to-day involvement with the children as well as with members of staff.

Group size seemed to have more of an impact on the way in which staff spoke to children than whether the

staff member was a teacher or nursery officer. The findings on staff speech support previous research showing that the way in which staff talk to children is significantly affected by their views of their own work role. In the present research, nursery officers' speech to children may have been influenced by viewing their involvement with children in primarily educational terms. Examination of the ways in which staff view their roles in the day nursery would appear to be a fruitful area for in-service training.

Overview

The use of systematic observation as a method of comparing the cognitive and social behaviour of children in the two nursery groups, day nurseries with and without teachers, requires some assessment. In order to carry out the comparison between nursery groups, a technique was needed that would be easy to use in a large number of nurseries and which would provide some measure of comparability and of control. The use of psychological tests of children's cognitive abilities had been rejected for a number of reasons, as discussed in Chapter Four. Systematic observation as a technique, appeared to meet the criteria of ease of use, comparability of results and control. At the same time, the use of such observation precluded more qualitative description of children's behaviour, such as might have been provided by the use of ethnography, for example. The disadvantages of systematic observation are that aspects such as the meaning of

behaviour and the quality of day nursery life are less easily captured. The detailed description that would have been necessary for this, however, would inevitably have taken up more time and could perhaps only have been used if the total number of nurseries had been reduced.

The primary independent variable of interest here was Nursery Group, whether teachers were present or not in the day nurseries concerned. Whilst reviewing the literature, however (see Chapter Three), it became clear that other variables would also have to be taken into account, such as the extent to which staff were involved with children and how; whether children's involvement with staff was likely to be differentiated by sex; and organisational differences specific to individual nurseries. The categories of Staff present and Staff structured were used to address the question of staff involvement with children and the category of Venue was used in an attempt to refer to the specific organisational quality of the individual day nursery.

The statistical method used to analyse the observational data was multiple regression. The main alternative considered was analysis of variance. Multiple regression was used in preference, primarily because of intercorrelation amongst some of the predictor variables (see Chapter Six). Whilst the values of these correlations were moderate rather than high, analysis of variance did not seem appropriate under such conditions.

One reason for positively choosing multiple

regression was that it readily provides a measure of the influence of each predictor variable when all other independent variables in the regression equation are held constant. This measure is the standardized regression coefficient, Beta, which also indicates the direction of the relationship, whether positive or negative, by its sign. If analysis of variance were to be used, a significant F test would have to be followed up by more detailed testing of differences between pairs of means in order to find out where the basis for the significant F lies. The application of t tests to pairs of means is limited, however, by the chances of significant results arising spuriously; with large enough samples even trivial differences may prove statistically significant. In addition to determining the statistical significance between group means, it would also be important to look at the strength of association between potential predictor and dependent variables. This measure is the equivalent of Beta in multiple regression analysis. On the whole, multiple regression seemed to be the most appropriate and convenient statistical method for the analysis of the observational data.

With regard to variables that were not included in the analysis of the observational data but that might usefully have been, a number of possibilities suggest themselves. One of these is the child's age. Correlations of behavioural variables with age might have provided an internal validation of which measures were indicative of

more mature behaviour. In addition, it would also have been useful to look at Staff-child ratio. Since actual staff-child ratios rarely correspond to officially stated figures, additional observation would have been necessary in order to work out what these ratios were. These data were not collected, thus precluding the use of Staff-child ratio as a potential predictor variable.

The stability of behaviour from day to day was examined for staff but not for children. The rationale at the time was that it was not of particular importance to do this for children since individual child differences were of less interest than differences between nursery groups. In retrospect, stability of child behaviour should have been examined and the number of observation samples increased per child. In order to do this, it may have been necessary to reduce the overall number of nurseries.

The question of sampling constraints has also to be considered, particularly with regard to the nursery officers involved in the audio-recordings. There may have been a bias in their selection, such that only those who were very confident in themselves and their ability to work with children felt able to participate in the research. Systematic data concerning this question were not collected; this is a weakness of the study. Impressionistically, nursery officers involved in the research appeared to be typical of the rest of the staff where age was concerned. However, they did also appear to

be more confident than a number of other staff members.

In order to evaluate whether those nursery officers in the sample differed markedly from those **not** in the sample, it would have been necessary to examine demographic and other forms of data. These would include such factors as the ages of staff; their position in the nursery hierarchy; how long they had been at the day nursery; their initial training for the job; their attendance on courses or other forms of in-service training; how they viewed their work roles in the day nursery; the extent to which education was part of this; whether they thought educational opportunities were important for children in day nurseries and how these should be provided.

In addition to the question of the representativeness of nursery officers in the sample, there is also the question of the context of their comparison with nursery teachers. Whilst there are clear differences between the two groups in terms of training and social status, other differences may have arisen from the differential responses of teachers and nursery officers to having their speech recorded. Such a process was referred to earlier when discussing the lack of differentiation in cognitively-oriented speech by teachers and nursery officers to children. Nursery officers may have interpreted the recording process as one in which they were allocated, as it were, an educational role whereas for teachers, this would not be

likely to happen as education is formally recognised as integral to their work role. At the same time, nursery officers as a group may have been more likely to perceive the audio recording as a 'test' of their individual capacities to work with children. Teachers, on the other hand, who may be more accustomed to such recordings as part of their training may have been less threatened by the process and been more inclined to view it as one whose focus was on the children. Where this is the case, the teacher is less likely to worry about her own performance during the recording or to try and behave in a way that conforms to a particular ideal. To the extent that nursery officers view the recording process as a 'test', they will be more likely to want to 'perform well' and behave in a way that they think will be interpreted as such.

The use of audio-recordings was necessary in order to carry out any analysis of speech. Attempts to note down staff speech by hand had been attempted during piloting but these were unsuccessful for two reasons: staff became aware of such attempts and tended to show signs of unease or else to move away; it was difficult to note all the words down and much speech was lost. Using audio-recordings in the way they were carried out in this project, allowed a certain degree of control and hence comparison of staff speech with small and large groups of children. At the same time, this meant sacrificing some degree of 'naturalness' for control and is likely to have

had differential effects on staff groups. One way of getting round this may have been to ask staff to carry out the audio-recordings themselves, so that control of the process would have been in their own hands. Whilst this approach might not have eliminated entirely the differential effects of recording, on teachers and nursery officers, they are likely to have been much reduced. It is clear from the range of activities engaged in by staff, however (see Appendix 2), that these were neither unusual to the children nor uncharacteristic of the nursery. Children were obviously familiar with the sand tray, water play, sound lotto, lego and other construction toys, and so on.

Some of the staff speech codes analysed on an individual basis could more usefully have been aggregated to form 'composite' variables. For example, codes in the activities of Pretend Play and Rapport respectively, could have been collapsed to form two composite variables. The single category of Disagrees with child, from the activity Rapport, could have been maintained. The aggregation would have reduced the amount of analysis and correspondingly, the chances of spuriously producing significant results. At the same time, the results may have been easier to interpret.

The issue of what should be interpreted as 'educational' talk is one that needs to be addressed, given Tizard and Hughes' (1984) conclusions that the kind of dialogue that seems to help the child is one in which

the adult listens to the child's questions and comments, helps to clarify his or her ideas and gives her the information asked for. This is contrary to the style apparently favoured by many teachers, in which the adult poses a series of questions. The activity Draws attention is closest to this particular style of interacting with children. In the present research, whilst it was expected that the activities of Draws attention and Instruction would be the ones with most cognitive content and therefore most clearly 'educational', no codes in these activities were used in significantly different ways by teachers and nursery officers. However, one of the three codes significantly affected by staff position was Gives information, from the activity of Conversation. This is in line with Tizard and Hughes' (op cit) conclusions. Accordingly, some convergence of the codes used by Wood et al, (1980) and Tizard and Hughes (1984) may be useful in further analysis of the speech data.

Given the use of direct observation in this project, it is pertinent to consider alternative designs for the present research. For example, an alternative approach would have been to observe a target child on separate occasions, with either a nursery officer or the teacher. Such a design would allow us to isolate the specific contributions of teacher and nursery officer when interacting with that particular child, and would be of particular interest when considering the child's experience of the day nursery environment. On its own,

however, this design is less suited to examining the day nursery environment from the point of view of *staff*.

More generally, there are a number of issues to consider regarding the scope of the research and the extent to which the methodology used allow one to compare day nurseries with and without teachers. As the research stands, it is not possible to fully evaluate the use of teachers in day nurseries. In order to do this, a number of areas concerning the way in which the day nursery operates as an *institution* would have had to have been analysed. These would include areas such as the views of the officer-in-charge regarding the aims of the nursery; the work that nursery officers do within the nursery; whether education is integrated into this work and if so, how; how staff approached their work with children, for example, were activities or events planned for the day; the extent to which support and training were provided for staff; and the level of staff morale. For day nurseries with teachers, it would have been necessary to examine additional areas such as how the nurseries were organised to accommodate teachers; the ways in which teachers worked within the nursery, for example, as specialist instructor, as an ordinary member of staff, as educational leader; what work teachers would **not** do within the nursery; teachers' own perceptions of their positions; areas of competition and of co-operation with nursery officers.

In the present research, differences between

teachers were evident in the ways in which they worked. In some nurseries, teachers withdrew small groups of the older children to work solely with them in a separate room; this was in addition to working with children in the main group rooms. In informal conversation with the teachers, they expressed views such as the older children needing to have opportunities to do quieter activities with the adult and that doing this would be of benefit to the children in that it would help to prepare them for school. By way of contrast, in another day nursery the teacher worked only in the group rooms. Exploring teachers' rationales for these different styles of working as well as the views of nursery officers on this subject, would provide some insight into the dynamics of teachers working in day nurseries.

The question of what work teachers would **not** do would be an interesting one to pursue. In general, teachers in the present research did not carry out lunch duties, i.e. sit with the children during lunch, serve them and make sure they ate most of their food, in some cases having to feed the younger children. On one occasion when a nursery officer was not available to do this work, the teacher was asked to take her place by the officer-in-charge and refused, on the basis that this was not part of her work as a teacher and that she would not do the work of a nursery officer. The incident was one that aroused a great deal of anger on the part of the teacher, at being placed in the position of having to

refuse a request that she clearly viewed as not legitimate. The teacher's objection concerned what should be, in her view, the appropriate division of labour: looking after the children during lunchtime constituted 'care' whereas her work was that of 'education'.

The above example illustrates the extent to which 'care' and 'education' can be separated in practice, at the same time as it raises the question of the boundaries of integrating 'education' with 'care' if these different domains are to be marked by a division of labour between staff groups. This is not to say that the attempt to integrate 'education' and 'care' should not proceed. Rather, it is to question how far such integration can occur if 'education' is effectively seen as something to be provided by teachers and likewise, 'care' is something to be provided by nursery officers. The reality of the higher social status of 'education' in comparison with 'care', may mean that in practice, it is easier for those whose primary task is 'care' i.e. nursery officers, to also 'educate', than it is for those whose primary task is 'education', to also 'care'.

The main weaknesses of the present research are threefold. The first is the lack of an evaluation of the representativenees of nursery officers in the sample. The second weakness concerns the small number of samples for observation of individual children. Rather than the eighty time-samples collected for each child, it would have been preferable to have collected a minimum of a

hundred time-samples, if not more. Finally, correlations between the child's age and the observational variables should have been carried out to look for internal validations of measures indicative of more mature behaviour.

In general, research on day nurseries in Britain has been sparse and this is even more notable when it comes to studies of the role of education in day nurseries. In this context, the present research represents some contribution to the area. The most important aspects of this contribution lie in the way the project highlights some of the methodological problems in carrying out such studies, including the impact of research on personnel in day nurseries. The limits of observational data for qualitative appreciation of the texture and dynamics of day nursery life have also been highlighted. The research raises a number of important questions about the functioning of day nurseries. These include questions about the ways in which staff work with children; how this is affected by the problems presented by children admitted to day nurseries; the nature of staff roles; the use of small-group work; and the need for staff support. The rationale for restricting the provision of day nursery places to children facing severe problems or disadvantages has to be questioned. The way in which the nursery operates as an institution appears to be of fundamental importance when addressing the issue of extending educational opportunities to children in day

nurseries.

Priorities for further research would be to pay more attention to the question of what it means to try and integrate 'care' and 'education' in day nurseries. This would involve examining the way in which the day nursery functions as an organisation, as indicated earlier, and in particular, the ways in which teachers worked in day nurseries. More qualitative analysis of staff speech to children and interactions generally, between children and staff, would also be necessary. One way of doing this would be to carry out an intervention project monitoring the introduction of a teacher into a day nursery. Qualitative data could be collected by means of both interviews and observations, using an ethnographic approach. This type of project would yield a great deal of detailed information on the specificities of teachers working in day nurseries, at the same time as it would enable a concrete analysis to be made of the complexities of attempts to integrate 'care' and 'education'.

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Appendix 1

Distributions of the total amount of speech for staff in Groups A, B and C

Total amount of speech for each Staff Position and Group Size - values falling within +/-1 S.D. from the mean (*)

	Small Group			Large Group		
	Group	Group	Group	Group	Group	Group
	A	B	C	A	B	C
Mean:	360.8	358.7	314.8	329.6	323.4	328.0
SD:	93.3	50.5	71.7	62.6	91.8	50.6
Totals:	423*	412	450	357*	443	425
	390*	389*	207	350*	397*	229
	519	370*	292*	306*	239*	331*
	493	347*	380*	462	325*	369*
	332*	442	334*	325*	411*	288*
	201	325*	348*	243	293*	330*
	360*	371*	219	392*	403*	346*
	278*	278	285*	324*	158	319*
	322*	294	318*	291*	242*	315*
	290*					
	Proportion within +/- 1S.D. from the mean					
	7/10	5/9	6/9	7/10	7/9	7/9
	70.0%	55.6%	66.7%	70.0%	77.8%	77.8%

The total number of utterances for each staff group

and group size, in each nursery, is shown on page 1. For each combination of Staff Position and Group Size, the extent to which the figures approximate a normal distribution, is examined. In a normal distribution, the range between +/-1 S.D. from the mean contains roughly two-thirds of the cases (68.27%). Sample values nearest a normal distribution here are those of Groups A and C in the Small Group and Group A in the Large Group. However, distributions for the other three groups do not differ greatly from the normal, given that the sample size in each is small. For the total amount of speech at least, sample values in each staff group are close to a normal distribution.

Appendix 2

Children's activities during audio-recording sessions

DAY NURSERIES WITHOUT TEACHERS

Nursery 1

Nursery officer

Large group: Miniature replica objects ('playpeople'); sand tray; puzzles; cars, aeroplanes.
Small group: Cardboard boxes glued together and painted to make 'robot'; books.

Nursery 2

Nursery officer:

Large group: Bubble-painting; cars; pastry in home corner; four-seated rocker.
Small group: Story-time; 'doctor's' kit; coloured pencils and paper; four-seated rocker; puzzles; scissors and magazines.

Nursery 3

Nursery officer

Large group: Miniature wooden furniture and people; picture-cards.
Small group: Tray with cornflour, cutlery, pastry cutters.

Nursery 4

Nursery officer

Large group: Steering wheel on column; small cars and garage; picture-cards; books; lego; toy camera.
Small group: Story-time; sand tray with teapots, cups and saucers, cutlery.

Nursery 5

Nursery officer

Large group: Water trough with dolls; paper cutouts and glue for sticking; puzzles.

Small group: Cooking scones.

Nursery 6

Nursery officer

Large group: Cooking cocunut pyramids.

Small group: Making 'jewellery' - gluing shapes onto paper.

Nursery 7

Nursery officer

Large group: Fruit-time; puzzles; water tray with toy crockery; cars.

Small group: Fruit-time; books; picture-lotto; shopping-corner; dressing-up clothes; rocking-horse.

Nursery 8

Nursery officer

Large group: Game with picture-cards.

Small group: Board-game with dice.

Nursery 9

Nursery officer

Large group: Jigsaws; water trough with dolls; sand tray; dressing-up dolls.

Small group: Picture-lotto; snap.

Nursery 10

Nursery officer

Large group: Lego; miniature replicas of motor-bikes, firefighters and equipment; toy cash registers

Small group: Picture-lotto; story-time; home corner.

DAY NURSERIES WITH TEACHERS

Nursery 11

Nursery officer

Large group: Sand tray with crockery; puzzles; lego; poly emms; home corner; sugar puffs.

Small group: Sound lotto; board game; singing.

Teacher

Large group: Painting; collage; lego; uncooked spaghetti; water trough with funnels; pastry; miniature replica objects ('playpeople'); story-time.

Small group: Clay, cutlery, crockery and toy casseroles.

Nursery 12

Nursery officer

Large group: Clay and water; scissors and cards; sand tray; mice in large cage brought out and stroked.

Small group: Sound lotto; board game.

Teacher

Large group: Story-time; 'hospital' toys; papier machier construction; small toy autos; coloured pencils and paper.

Samll group: Wooden bricks; sand tray and paper bags.

Nursery 13

Nursery officer

Large group: Sound lotto; wooden bricks.

Small group: Sound lotto; puzzles; coloured pencils, chalk and paper.

Teacher

Large group: Preparing fruit salad.

Small group: Face painting.

Nursery 14

Nursery officer

Large group: Felt tips and paper; water trough.

Small group: Puzzles; picture lotto.

Teacher
Large group: Puzzles; model construction, painting; shopping corner.
Small group: Picture lotto; story-time.

Nursery 15
Nursery officer
Large group: Sound lotto; story-time with pop-up book.
Small group: Orange-time; building bricks; story-time
Teacher
Large group: Finger painting; slotted board with pegs; story-time; toy cars; puzzles..
Small group: Puzzles; drawing with felt tips; shape-sorter; identifying utensils hidden in bag.

Nursery 16
Nursery officer
Large group: Water trough, beakers; drawing with stencils; dominoes; picture cards..
Small group: Picture dominoes; singing; drawing; home corner.
Teacher
Large group: Puzzles; finger printing; sand tray with plastic bowls; home corner.
Small group: Miniature replica animals; home corner; sand tray with sorted shapes.

Nursery 17
Nursery officer
Large group: Decorating Christams tree; sticking paper shapes.
Small group: Finger painting; glove puppets.
Teacher
Large group: Play dough; painting, drawing; puzzles; home corner.
Small group: Painting; animal pictures; hospital corner; sand tray with small replica animals.

Nursery 18

Nursery officer

Large group: Painting; dressing up in home corner; paper cutting; cars.

Small group: Making Mother's Day cards.

Teacher

Large group: Session with clay.

Small group: Drawing; building bricks; shape sorting; story-time; board games; picture cards; glove puppets.

Nursery 19

Nursery officer

Large group: Orange time; drawing; plastic replica men; home corner.

Small group: Sticking beans on paper; lego; scissors and magazines; puzzles.

Teacher

Large group: Orange time; jigsaws; nesting blocks.

Small group: Painting; posting pagoda; dressing up clothes; puzzles; cars.

Appendix 3

Regression equations - factors affecting children's behaviour

Solitary

Predictor variables:

Staff structured - x1

Staff present - x2

Regression equation:

$y = 19.19 - (0.37 * x1) - (0.19 * x2)$

Parallel

Predictor variables:

Staff structured - x1

Venue - x2

Regression equation:

$y = 9.19 + (0.62 * x1) - (0.13 * x2)$

Associative

Predictor variables:

Staff present - x1

Venue - x2

Regression equation:

$y = 29.33 + (0.27 * x1) + (0.16 * x2)$

Co-operative

Predictor variables:

Staff present - x1

Staff structured - x2

Regression equation:

$y = 13.74 - (0.30 * x1) - (0.16 * x2)$

Nonplay

Predictor variables:

Nursery group - x1

Staff structured - x2

Regression equation:

$y = 25.3 - (0.41 * x1) + (0.38 * x2)$

No materials

Predictor variable:

Staff structured - x1

Regression equation:

$y = 2.46 + (0.54 * x1)$

Partial

Predictor variables:

Venue - x1

Staff structured - x2

Regression equation:

$y = 3.32 - (0.35 * x1) - (0.20 * x2)$

Appropriate

Predictor variable:

Staff structured - x1

Regression equation:

$y = 30.52 - (0.48 * x1)$

Symbolic

Predictor variables:

Staff present - x1

Staff structured - x2

Nursery group - x3

Regression equation:

$y = 8.39 - (0.29 * x1) - (0.18 * x2) + (0.15 * x3)$

Routine

Predictor variables:

Staff present - x1

Staff structured - x2

Regression equation:

$y = 0.08 + (0.47 * x1) + (0.41 * x2)$

Task

Predictor variables:

Staff structured - x1

Regression equation:

$y = 25.63 - (0.38 * x1)$

Theme

Predictor variables:

Nursery group - x1

Staff structured - x2

Staff present - x3

Regression equation:

$y = 10.45 + (0.27 * x1) - (0.34 * x2) - (0.32 * x3)$

Appendix 4

Frequencies - Staff present and Staff structured with girls and boys

Day nurseries without teachers

Nursery	Staff present		Staff structured	
	Girls	Boys	Girls	Boys
1	72	36	70	97
2	77	32	28	54
3	68	66	44	14
4	52	64	72	19
5	58	16	8	8
6	51	60	59	45
7	53	29	54	80
8	67	31	12	34
9	58	33	23	1
10	77	46	12	45

Day nurseries with teachers

Nursery	Staff present		Staff structured	
	Girls	Boys	Girls	Boys
11	94	100	34	30
12	55	33	79	36
13	51	45	37	23
14	25	43	33	137
15	89	50	32	53
16	55	48	77	66
17	45	57	1	4
18	32	94	86	59
19	33	83	0	34